



British Guiana.

ANNUAL REPORT

OF THE

DIRECTOR OF AGRICULTURE

FOR THE YEAR

1955.

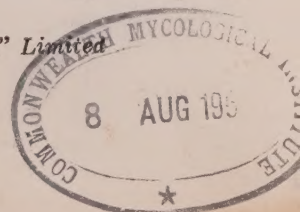
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1958



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C O N T E N T S

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PREFACE

General Statement of Agricultural Policy for the Colony of British Guiana, 1955.

The general Agricultural Policy of the Colony of British Guiana is to increase the economic production of crops and livestock by improving efficiency of production and enlarging areas under cultivation, and to concentrate endeavour on those which are particularly suited to the country and are already dominant, namely, sugar, rice, dairy products, beef, coconuts and fruit and food crops for local consumption.

This policy is projected also to introducing, testing and fostering suitable new crops and breeds of livestock with a view to diversifying agriculture and affording new economic opportunities to farmers and the community in general.

The policy adopted in achieving this objective will be:-

- (i) To give priority to measures which will provide an early increase in economic agricultural production. This will include:
 - (a) undertaking research into methods of increasing the efficiency and volume of agricultural production;
 - (b) providing extension services to farmers, and training in scientific agriculture for staff and suitable members of the farming community, particularly youths;
 - (c) organising and rationalising marketing and processing of produce to enable the farmer to obtain the maximum return for his product.
 - (ii) to ensure that the cultivated lands of the coastal plain and river banks are used to the best advantage, the development of new areas, having particular regard to efficient production and the maintenance of soil fertility;
 - (iii) to co-operate with agencies providing adequate credit to farmers on terms commensurate with their standard of development and their sense of responsibility in such matters;
 - (iv) to investigate and encourage the agricultural development of the Interior with the view, firstly, of making the indigenous population as self-supporting as possible and secondly of developing non-perishable crops for export; and
 - (v) to work in close collaboration with, and to assist all agencies connected with rural and interior development.
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SECTION I

AGRICULTURE IN THE COLONY

WEATHER CONDITIONS

The total rainfall for the year was 111.63 inches as compared with 147.55 inches in 1954 and with 92.75 inches, the average precipitation over the past 75 years (1880 - 1954).

2. The general distribution of the rain was good, except for the months of March, November and December, which were very wet with totals of 13.70 inches, 15.38 inches and 21.14 inches respectively.

3. Rain fell on 268 days of the year as compared with 270 days in 1954; the highest fall for one day was 4.35 inches on 5th December which was less, however, than the record of 7.65 inches which fell on 1st December, 1936.

4. The highest shade temperature on record, 93.00°F., was recorded on 22nd September, 1955, (the previous highest was 92.50°F. on 9th September, 1937). Incidentally, this high temperature occurred on the same day that "Hurricane Janet" devastated the neighbouring West Indian Islands.

5. The anemograph recorded a gale at 3.25 p.m. on 22nd September, the velocity being 35 knots.

CROPS

SUGAR

Output:

6. The total production of sugar in 1955 was 250,111 tons compared with 238,922 tons in 1954 - an increase of 11,189 tons.

7. The total acreage of cane reaped, inclusive of peasant farms, was 77,500 tons. Of this amount, the acreage reaped on sugar plantations was 71,864, that is, 2,435 acres less than in 1954. The average yield in 1955 of tons commercial sugar per acre from all varieties on sugar plantations increased, however, to 3.40 tons as compared with 3.14 tons in 1954 and 3.47 tons in 1953. Including peasant cane farming, the average for the Colony was 3.23 tons per acre compared with 3.00 in 1954.

8. Table I gives details of production for the year.

TABLE I

SUGAR AND RUM STATISTICS, BRITISH GUIANA, 1954 AND 1955.

Year	Area reaped, (including farmers' canes) English acres			Sugar produced (including farmers' canes) Tons			Yield per acre Tons			Rum produced Proof Gallons		
	Berbice	Demerara	Colony	Berbice	Demerara	Colony	Berbice	Demerara	Colony	Berbice	Demerara	Colony
1954	31,325	48,463	79,788	88,299	150,623	238,922	2.82	3.11	3.00	783,793	1,432,904	2,216,757
1955	30,160	47,340	77,500*	98,489	151,622	250,111	3.27	3.20	3.23	1,046,180	1,758,100	2,804,280

* Estimated.

Varieties:

9. The variety position for 1955 on sugar plantations showed a marked change from the previous year. B.41227 was the dominant variety, occupying 34.3% of the total acreage. B.34104 which was the dominant variety in 1954, when it accounted for 31% of the area grown, fell to third place in 1954 having been planted on 13.3% of the total area. The dominance of varieties is determined largely by yield ability and their tolerance or resistance to Leaf Scald disease.

10. The following Table shows the distribution of varieties reaped on sugar plantations:-

TABLE II

<u>Variety</u>	<u>Acres</u>	<u>Percentage distribution in the colony</u>
B.41227	24,618.4	34.3
B.37161	21,250.9	29.6
B.34104	9,570.1	13.3
B.4098	7,406.8	10.3
B.4362	3,255.3	4.5
B.40105	1,098.6	1.5
Co.419	999.0	1.4
D.14/34	623.4	.9
B.47225	574.7	.8
D.142/41	561.0	.8
D.62/43	397.4	.6
D.158/41	377.0	.5
D.37/45	359.7	.5
Other Varieties	770.5	1.0
Totals	71,864.5	100.0

Pests and Diseases:

11. Efforts to combat Leaf Scald disease by extending resistant varieties continued to be favoured with success and the incidence of the disease to be reduced accordingly.

12. Chlorotic Streak was very prevalent during the early part of the year. The incidence declined as the year progressed until December when it began to rise again.

13. The status of froghopper on canes remained at the level of the previous year. Effective control was achieved by periodic dusting with an agroicide limestone mixture.

Fertilisers:

14. The quantities of, and expenditure on various fertilisers used on the sugar estates for the years 1954 and 1955 are shown in Table III.

15. The widespread adoption of the foliar diagnosis technique, by affording a means of determining the specific nutrient deficiencies of the various areas on the sugar estates, has necessarily led to attempts to supply any deficiency in the major nutrient where it is profitable to do so.

/This....

This has led also to an increase in the rate of application of non nitrogenous fertilisers.

16. The total quantity of fertilisers used on sugar plantation was 18,156 tons valued \$2,331,381 compared with 17,083 tons valued \$2,086,773 in 1954. In addition, 14,552 tons of Limestone valued \$315,652 were used compared with 7,377 tons valued \$182,856 in 1954. Sulphate of Ammonia accounted for 14,212 tons compared with 14,244 tons in 1954. Phosphatic and potassic fertilisers continued to be increasingly used. The 1955 returns were 3,960 tons phosphatics and 1,038 tons potash compared with 2,306 tons and 553 tons respectively in 1954.

17. Table III gives details of fertiliser usage for the year.

Table III here.

Marketing:

18. Total exports of sugar for the year amounted to 242,525 tons valued \$40,251,396 compared with 243,915 tons valued \$41,430,473 in 1954. The average export price was \$165.97 per ton f.o.b. compared with \$169.85 in 1954.

19. Exports to the United Kingdom under the Commonwealth Sugar Agreement were 162,066 tons at £40.15 per ton c.i.f.

20. Local sales of sugar increased to 17,380 tons compared with 16,850 tons in 1954. There was no change in the local retail price.

21. The export of rum showed a marked increase from 1,594,307 proof gallons valued \$2,338,064 in 1954 to 2,159,553 proof gallons valued \$3,132,123 in 1954. The average f.o.b. price remained at \$1.45.

22. Export sales of molasses declined, however, from 9,211,888 gallons valued \$1,032,088 in 1954 to 7,984,611 valued \$767,237 in 1955. The average f.o.b. price per gallon fell from .11 cents to .10.

23. Table IV summarises the export trade in sugar, rum and molasses.

Table IV here.

RICE

Output:

24. Production was at about the same level as in 1954, and on account of the fine weather prevailing at the end of the year there was a marked improvement in the quality of rice turned out by the mills.

25. The total agricultural area devoted to rice cultivation increased to 153,000 acres compared with 139,500 acres in 1954. Including the spring crop, it was estimated finally that a total of 171,900 acres was seeded compared with 161,453 acres in 1954, producing an estimated 89,100 tons of rice compared with 89,400 tons in 1954.

26. Table V shows details of production in the Colony.

/TABLE V....

TABLE III

VALUES AND QUANTITIES OF FERTILIZERS USED ON SUGAR ESTATES, 1954 - 1955.

	Ammonium Sulphate		Basic Slag		Superphosphate		Hyperphosphate		Muriate of Pot.		Sulphate of Pot.		Limestone	
	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955	1954	1955
Quantity-Tons	14,244	14,212	7	67	1,885	2,876	414	1,017	300	645	233	393	7,877	14,552
Value-\$	1,686,106	1,708,630	547	1,600	302,412	478,676	35,219	88,193	34,762	74,631	27,727	45,720	182,856	315,652
Cost per Ton-\$	118.37	120.22	77.39	24.00	160.46	166.43	85.10	86.75	116.04	115.74	118.79	116.29	23.22	21.69
% of Total Quantity	57.1	42.0	-	0.2	7.5	8.5	1.7	3.0	1.2	1.9	.9	1.2	31.6	43.1
% of Total Value	74.3	62.8	-	0.1	13.3	17.6	1.6	3.2	1.5	2.7	1.2	1.7	8.1	11.6

TABLE IV

EXPORTS OF SUGAR AND BY-PRODUCTS, BRITISH GUIANA, 1954 AND 1955.

Year	Sugar			Rum			Molasses		
	Tons	Value	Value per ton f.o.b.	Proof Gallons	Value	Value per Unit f.o.b.	Gallons	Value	Value per Unit f.o.b.
1954	243,915	\$41,430,473 £ 8,631,348.54	\$169.85 £ 35.41	1,594,307	\$2,338,064 £487,096.66	\$1.45 £ .30	9,211,888	\$1,032,088 £ 215,618.33	\$.11 £ .02
1955	242,525	\$40,251,396 £ 8,385,707.5	\$165.97 £ 34.58	2,159,553	\$3,132,123 £652,525.6	\$1.45 £ .30	7,984,611	\$ 767,237 £ 159,841.04	\$.10 £ .02

TABLE V

Year	Total Estimated Acres (Spring and Autumn Crops)				Estimated Yield
	Berbice	Demerara	Essequibo	Total	Tons of Rice
1954	63,347	60,426	37,680	161,453	89,400
1955	65,000	63,600	43,300	171,900	89,100

Supply of Pure Line Seed

27. Pure Line Seed Padi continued to be produced by tenants of the Anna Regina Land Settlement under supervision of the Department of Agriculture. Production and marketing arrangements at Anna Regina were organised by the Land Settlement Authorities. A total of 5,737 bags (140 lb. net) was produced, for which the producers were paid \$7.55 per bag. This seed was despatched to Agricultural Officers in all rice growing districts and sold to farmers at \$8.86 per bag, with the exception of the Essequibo Coast where it is grown, and where the price was \$8.56 per bag.

28. The steady improvement in the yield of padi on farmers' lands and in the quality of marketed rice, is due largely to this scheme which has become an integral part of the organisation of the industry.

29. Notwithstanding this scheme, rice farmers in all districts were encouraged to produce their own pure line seed under supervision of Agricultural Instructors. This seed was purchased subsequently by the Department, then handed over to the Rice Producers' Association for resale to farmers. The price structure for this seed padi is essentially similar to that from Anna Regina. 737 bags were produced.

Marketing:

B.G. Rice Marketing Board:

30. The B.G. Rice Marketing Board continued to be responsible for the internal and export marketing of the entire production of rice.

31. The quantity of rice delivered to the Board during its financial year 1st October, 1954 to 30th September, 1955, was 827,154 bags (180 lb. gross weight) equivalent to 66,468 tons. This represents an increase of 105,331 bags on the quantity delivered to the Board during the previous crop year and the highest in its history.

32. The price structure of both padi and rice was revised in order to place a greater emphasis on quality and gave growers and millers a greater incentive to produce better grades of padi and rice. The new and old prices of rice, per bag of 180 lb. gross, were as follows:-

/Grade

<u>Grade</u>	<u>New Price</u>	<u>Old Price</u>
Extra Super	\$18.80	\$18.45
Super	17.95	17.55
Extra No. 1	16.90	16.90
No. 1	16.00	16.50
No. 2	14.00	15.85
No. 3	12.00	15.35
Super Broken	8.40	11.00
Broken	7.20	9.80
Unclassified	6.30	9.30
White A	17.50	16.90
White B	14.00	15.10
White Broken	8.40	10.70

33. The minimum buying price for padi was lowered from \$6.30 to \$6.00 per bag of 140 lb. nett.

34. The selling prices for rice for export to the British West Indian colonies having contracts with the Board were -

Super	-	\$19.65	f.o.b.	per bag of 180 lb.
First quality	-	\$18.75	"	" " " "
Second quality	-	\$17.85	"	" " " "

Local selling prices varied from \$17.05 per bag for Brown A to \$6.00 per bag for Stockfeed rice.

35. Exports of rice for the calendar year amounted to 53,249 tons valued \$12,515,745 compared with 36,657 tons valued \$9,277,831 in 1954. Local sales and retentions by growers amounted to 29,792 tons.

36. The Board suffered substantial loss during the year on account of the abnormal weather prevailing during the 1954 harvest, resulting in low grade rice which had to be disposed of at a loss in the West African market.

37. Considerable difficulty was experienced in handling the increased volume of exports during the year, owing to the limited wharf frontage at the Board's Warehouse. Storage and shipping facilities were rented from commercial firms. Construction was commenced on the New Amsterdam Warehouse to extend storage and wharf facilities.

B.G. Rice Development Company:

38. The Company continued to operate central mills at Mahaicony/Abary and Anna Regina. Construction of the new mill at Anna Regina continued during the year.

39. The Company purchased the following quantities of padi for the year:-

Mahaicony/Abary

(a) From Company's cultivation	25,516 bags (140 lb.
(b) From farmers	135,721 " net ea.)

161,237 "

Anna Regina: From farmers..

87,321 "

Total .. 248,558 bags

Machinery:

40. The number of tractors imported into the colony during the year amounted to 189, compared with 331 in 1954. Interest in mechanisation was maintained in the rice industry, where prices remained favourable and the issue of duty-free petrol continued for its benefit. The decline in imports of tractors seems to indicate that mechanisation of the industry is approaching the point where original demand by existing cultivators is being satisfied.

41. The Rice Marketing Board discontinued its scheme of guaranteeing commercial distributors against loss on machinery bought by approved rice producers under hire purchase agreements. Hire service of machines was continued by the Land Settlements and the Rice Producers' Association, while the pool of larger machinery, such as draglines and bulldozers, continued to be run by Government.

Pests and Diseases:

42. Blast (*Pyricularia oryzae*) disease occurred commonly on banks of the Temera River and yields were reduced thereby.

43. There were no serious outbreaks of insect pests.

COCONUTS

44. The coconut industry continued largely unchanged in regard to scale and methods of production. The acreage under this crop was probably the same (31,500 acres) as in 1954. The major areas for coconuts are the narrow sand reefs along the coastal belt - most, if not all of which are fully developed, and the banks of creeks and rivers especially near the mouths, where drainage is good.

45. There was more interest in copra manufacture, most estates have installed artificial driers and there was much activity by small farmers who dried copra in the open and even at the side of paved roads, e.g. the recently built Corentyne road.

46. Table VI hereunder shows the production of various coconut products in 1955, and in 1954 and 1953 by way of comparison.

TABLE VI

Year	Copra (tons)	Edible Oil (Glns.)	Crude Oil (Glns.)	Soap (Lbs.)	Margarine & compound Lard (Lbs.)	Copra Meal (Lbs.)
1953	4,948	554,792	254,089	3,286,892	299,235	3,234,255
1954	5,276	678,845	253,643	3,959,579	284,108	3,913,524
1955	6,114	777,853	241,078	4,123,150	240,249	4,393,951

Grading:

47. Copra grading was continued. There was no change in the prices fixed during 1954, that is, £58. 6. 8d. per ton for Grade I, £56. 0s. 0d. for Grade II and £53. 13s. 4d. for Grade III.

Imports....

Imports:

48. 2,560 gallons of edible oil valued at \$9,377 were imported from sources outside the Caribbean. Exports of copra meal amounted to 75,600 lb. valued at \$3,420.

Pests and Diseases:

49. Outbreaks of caterpillar (Brassolis sophorae) attack occurred in East Demerara and Berbice. The situation caused some concern and educational propaganda was undertaken preparatory to the enforcement of legislation in the following year.

50. Two physiological diseases "Little Leaf" and "Pencil Point" remain prevalent in some poorly drained areas. A condition referred to as "Slow Decline" caused the death of trees in East Demerara.

COFFEE

51. Interest in coffee, stimulated the previous year by a world shortage and favourable prices, was sustained during the year. The rehabilitation of old estates and the planting of new areas continued. Prices received by farmers ranged from 60 to 75 cents per lb. The average local retail price for ground coffee was \$1.20 per lb. Efforts to encourage the growing of Robusta coffee instead of the low quality Liberian, which is at present universally cultivated, did not meet with much success.

52. Production was estimated at 800,000 lb., of which 417,536 lb. valued at \$298,570 were exported, compared with 478,352 lb. valued \$364,896 in 1954.

53. There was an outbreak of Sclerotium disease in the North West District and Pomeroon.

CITRUS

54. Citrus cultivations were well maintained and cared during the year. Increase in acreage was mainly confined to the North West District and the Pomeroon area. Market prices continued to be attractive and there were no important outbreaks of pests and diseases. The demand for budded citrus plants continued at a high level.

55. Local production of orange and grapefruit is still insufficient to meet the demand, and imports have continued from Surinam and Trinidad. The immediate future for the local producer supplying the home market is favourable.

56. The production of lime products for export continued to be most unfavourably affected by market conditions. A small quantity of lime oil was prepared for export, but the export of lime juice continued its downward trend. The 1954 and 1955 exports are shown below.

TABLE VI

Year	Lime Juice		Lime Oil	
	Quantity (gals.)	Value	Quantity (lb.)	Value
1954	5,102	\$6,540 £1,362.5	Nil	Nil
1955	2,515	\$2,542 £529	1,598	\$9,839 £2,050

FOOD CROPS

Roots and Plantains:

57. Interest in food crops, which had declined in 1954, was revived to some extent in 1955, and with good prices prevailing, increased acreages were planted. Purchases by the Marketing Division amounted to 836,078 lb. in 1955, compared with 794,882 lb. in 1954.

Insect Pests:

58. Panama, Moko and Sigatoka diseases continued to be serious in some areas. Acoushi ants and cockles were a cause for concern in others.

ANIMAL HEALTH

Foot-and-Mouth Disease:

59. The Foot-and-Mouth disease outbreak in Brazil was successfully held and did not cross the frontier into the Rupununi District.

60. The cordon sanitaire was maintained, however, up to November, 1955, after which, ranchers were permitted to return their cattle into the evacuated areas. The fenced crossings are being maintained and patrols along the border are still carried out.

61. The regulations made in 1954 against the movement of cattle to the coast from the Rupununi District and Brazil were still in force at the year's end, but the former have since been revoked and the cattle trail reopened.

Trypanosomiasis:

62. The Rupununi District and Berbice remained under quarantine to prevent the spread of this disease in horses.

63. There was one outbreak in a group of 25 - 30 horses at Good Hope in the Rupununi District and approximately 15 animals died. The disease was arrested, however, by treatment with Ethidium Bromide.

General:

64. There were 2 major diseases occurring during the year, one was Paralytic Rabies of which there was a considerable outbreak in the Rupununi District, and another, to a lesser degree, in the Demerara River District. The other disease was Newcastle disease which was wide spread on the coastal belt. Vaccination programmes were instituted for both diseases and subsequent control was effected.

65. Inspection of livestock entering the colony continued as a means of preventing the introduction of diseases.

DAIRY INDUSTRY

66. The amount of milk purchased by the Milk Control Organisation was once again less than that of the previous year. The figure for 1955 is 209,137 gallons, as against 280,340 gallons for 1954 and 352,837 for 1953.

The total production of milk was probably higher, however, with increased production from Bel Air particularly, and the lower East Coast Demerara District for which figures are not available.

67. The Sugar Estates continued to produce milk from their own herds for their staffs.

68. The Artificial Insemination Service was further extended to include a considerable portion of the Corentyne Coast, Berbice; East Bank, Berbice; the Essequibo Islands and the Essequibo Coast; as well as the upper East Bank, Demerara - this means that almost the entire coastal area is now offered artificial insemination. Inseminations for 1955 amounted to 2,132 against 2,242 for 1954.

69. The lands along the coast are continually being planted in rice and this has tended to reduce considerably the number of cattle. Farmers are realising that dairy cows can be maintained only by confinement and hand feeding from cultivate fodder plots.

70. The Pasteurisation Plant to be established in Georgetown has now arrived in the Colony, a site has been selected and work in construction is due to commence very shortly. It is hoped that pasteurisation of milk will bring increased fresh milk production and a restoration of the preference for fresh milk among city consumers with consequent reduction in the imports of milk and milk products.

Imports of Milk Products:

71. Imports continued to increase markedly. The following was the position in 1955:-

	<u>Total Imports</u>	<u>Valued At</u>
Condensed Milk (sweetened)	4,296,459 lb.	\$1,084,437
Evaporated Milk	4,225,391 "	960,541
Milk Powder (including skimmed-milk)	773,982 "	540,577
	9,295,832 "	\$2,585,555 B.W.I.

72. The comparative figures for 1953 and 1954 were 5,255,531 lb. valued at \$1,678,442 and 6,902,073 valued at \$1,838,328 respectively.

BEEF

73. The major centres of beef production are the coastal ranches and the Rupununi Savannahs. There are few specialised beef producers on the coast, but most of the cattle marketed there are old or barren cows and old oxen. The important beef producers on the coast are almost entirely comparatively large limited liability companies. The quality of cattle produced by these concerns is good with a dressing out percentage of from 55% to 62%.

/Production

74. Production in the Rupununi is dominated by the Rupununi Development Co. Ltd., which owns over 60% of the total cattle population of some 45,000 head.

75. The supply of beef from the coastal areas was better than the previous year as the rainfall was not as great and the coastal ranchers were able to maintain supplies of beef when none was available from the Rupununi District during the very heavy rains there.

76. Slaughter of cattle at the temporary abattoirs in the Rupununi continued during the year.

77. The total supply of cattle marketed in Georgetown for beef was recorded as 9,290 head against 9,228 or an increase of 62 head over 1954. Of this amount 4,461 were flown as dressed quartered carcasses from the Rupununi District.

78. The average price of beef to producers was 30¢ per lb. dressed carcase weight.

79. Breeding, using the Santa Gertrudis breed with local cattle, is to commence immediately and it is hoped that this will result in increased production by improved carcase weight.

HIDES

80. The weight of hides exported was 298,461 lb. valued at \$20,721, a decrease on 1954's figures of 385,487 lb. valued \$37,444. World market prices fell to an alarming level.

81. A large number of hides remained in the Rupununi District in 1955 as all cattle were slaughtered there and beef flown to the city, the cattle trail being closed for the entire year. This contributed to the decrease in the number of hides available for export.

PIGS

82. The number of pigs slaughtered in Georgetown for the year was 7,193 an increase of 591 on the slaughterings for 1954. This figure is made up as follows:-

Municipal Abattoir	6,369
Ham and Bacon Factory (Department of Agriculture)	<u>824</u>
Total	<u>7,193</u>

83. The pig industry continued to expand as a result of the availability of a good mixed feed following successful trials at the Livestock Farm, and the success of the Department's Ham and Bacon Factory.

84. The retail price for pork was 64 - 72¢ per lb.

/SHEEP....

SHEEP AND GOATS

85. The rearing of milch goats in Georgetown continues to thrive amongst the members of the local goat society and during the year several importations of pure bred stock were made from Trinidad and Barbados.

86. The Department imported a pure-bred Alpine buck that is due to be used in service shortly.

87. 385 sheep were slaughtered in Georgetown at the Municipal Abattoir against 475 in 1954 and 552 in the previous year and goats 433 against 509 for the previous year. The available figures for slaughter of sheep and goats in Georgetown form a very small part of the number of animals actually slaughtered on the entire coastal area. It is difficult, therefore, to provide any figure that is a true indication of the amount of mutton consumed. There is a limited market for imported frozen mutton - 83,759 lb. valued at \$36,316 B.W.I. being imported for 1955.

88. The retail price for mutton to consumers was approximately 72 cents per lb. for local mutton and 64 - 72 cents per lb. for imported mutton in 1955.

POULTRY

89. The poultry industry continued to expand and the production of broiler was more stable as the importation of Canadian and American frozen poultry meat was controlled quantitatively in relation to local production, and the known requirements of the colony. It is hoped that these imports will continue to show a steady decline, as they are replaced by local production.

90. A total of 327,363 lb. frozen poultry was imported during the year under review.

91. The price for imported and local plucked frozen poultry ranged from 84 cents to \$1.08 per lb.

IMPORTS OF MEAT PRODUCTS

92. Large quantities of meat products have still to be imported into the colony as shown by the following figures:

	<u>Total Imports</u>	<u>Value</u>
Pickled beef	1,158,649 lb.	\$ 442,206
Pork Products	761,200 "	359,012
Bacon and Hams	144,058 "	137,131
Canned or bottled	649,861 "	443,457
Other kinds (including poultry)	676,931 "	326,426
	<u>3,390,699 "</u>	<u>\$1,708,232</u>

BEEKEEPING

93. Weather conditions for beekeeping were unfavourable for the second year in succession. Feeding with sugar during the rains was necessary for hives to be strong enough to take advantage of the honey flow. The average yield per colony was 104 lb.

94. The estimated total production of honey was 88,400 lb. and beeswax 1,600 lb. valued at \$24,350, an increase of 3,400 lb. and 100 lb. respectively valued at \$1,350 more than in 1954. A ready local market at attractive prices existed. Wholesale prices averaged 24 cents per lb. and retail price per bottle (approximately 1 lb.) was as much as 44 cents. A trial export of 1,200 lb. of honey was made. Beeswax was sold at \$1.50 per lb.

FISHERIES

Conditions:

(a) Marine:

95. The coastal fishing grounds continue to be the main source of supply of fresh fish in the Colony, and over which fish shift in unison with the mudflats which are washed away and built up according to the weather.

96. Fin seine fishing continues to provide the greater portion of catches followed by the Chinese seine which provides the poorer classes with smaller fishes which comprise their main source of protein. Efforts are being made to introduce trawling outside the area fished by these traditional methods.

97. An American Company has applied for permission to use Georgetown as a base for deep sea operations (chiefly trawling). This Company has already leased a wharf and bonds. It is expected that they will operate refrigeration and fish meal plants and a filleting and packing house. Most of their output will be exported.

98. The fishing reserve area on the foreshore in which all non-fishing vessels are prohibited, has proved invaluable to fishermen. The sum of \$504.80 was paid to fishermen during the year for damages to their equipment by passing craft. Previously, such equipment was damaged or totally destroyed by these vessels with impunity and had caused widespread discontent and discouragement of fishing among fishermen.

(b) Inland:

99. A large number of persons continued to earn a living and an even larger number to obtain fish for domestic use by fishing in the inland rivers, waterways, swamps, etc. The actual number involved is difficult to estimate but is believed to be over 10,000. Production of fish from Inland Fisheries is also difficult to establish, but is as important to the rural population as the marine and estuarine fisheries are to residents of Georgetown and New Amsterdam. In addition, the cultivation of fish (*Tilapia*) sponsored by the Department was beginning to contribute to the supply and some 170 ponds were established.

Production:

100. It is estimated that in 1955, 3,294 persons were engaged in coastal or estuarine and deep sea fishing.

/There....

There were 981 registered owners, of these 176 used outboard engines and 11 inboard engines for auxillary propulsion, compared with 93 outboard and 8 inboard engines in 1954

101. Fish landed in Georgetown from coastal or estuarine sources amounted to 7,464,750 lb. valued at \$2,339,425 and from deep sea catches 580,000 lb. valued at \$232,000 compared with 5,790,000 lb. valued at \$1,737,000 and 322,700 lb. valued at \$129,000 in 1954.

102. 60,000 lb. of dried shrimps were produced of which 6,000 lb. were exported to Trinidad.

103. 50,071 lb. of shrimp meal were purchased by manufacturers of Livestock feed. The price of dried shrimp averaged 80 cents per lb. and shrimp meal was sold at 6 cents per pound, compared with 50,000 lb. and 42,000 lb. produced in 1954 at the same averaged prices.

104. No production figures are available for the quantity of crabs or other similar shellfish produced. Exports of swimbladders, fish maws or fish glue totalled 7,461 lb. valued at \$2,235, as compared with 9,952 lb. valued at \$2,985 in 1954.

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SECTION II

WORK OF THE DEPARTMENT

A. THE EXTENSION SERVICES

105. The staff situation was particularly acute among the junior ranks. Six instructors returned from the Eastern Caribbean Farm Institute during the year, but since three serving instructors were sent in turn for training, the situation was relieved only to a small extent. In spite of this, contacts between the extension service and the farming community continued at a much higher level than in 1954.

EXTENSION METHODS

106. The methods used to contact farmers were essentially those used in most extension services. These may be classified as: Individual Methods, Group Methods and Mass Methods.

Individual Methods:

(a) Farm Visits

107. By far the most important and effective technique in this Colony, the Field Officer meets the farmer 'face to face' on his own farm and advises him on some improvement, invariably giving actual demonstrations himself, e.g. pruning his orchard, controlling insect pests and the proper management of livestock; or the Officer may offer the farmer at cost price (from stocks carried by him or available at his office), a new variety of seed, fertilizers, insecticides, veterinary drugs and literature, e.g. the Departmental Farm Journal, or he may perform some service free of cost, e.g. treating a sick animal, castrating a bull, deworming a calf.

108. Farm visits were made also for investigating applications for loans, supervising the use of loans, enquiring into applications for duty-free petrol for use in agricultural machinery, and securing information in connection with economic studies and enquiries from the Central Government.

109. The Field Officer's visit to a farm is associated therefore, more often than not, with some actual benefit to the farmer, either directly or indirectly.

110. During the year, the staff reported a total of 25,228 visits to farms compared with 19,185 in 1954. These were distributed as follows:-

Berbice	-	4,332
Demerara	-	10,459
Essequibo	-	7,729
North West District	-	1,866
Lazaruni-Potaro	-	442

(b) Interviews:

111. But the farmer often visits the Agricultural Officer at his home, office or demonstration station in search of advice and information. A total of 23,984 such interviews were recorded as follows compared with 20,332 in 1954:-

Berbice	-	5,480
Demerara	-	12,808
Essequibo	-	4,158
North West District	-	434
Bartica	-	1,104

(c) Telephone Calls and Letters:

112. No record was kept of these. It should be stressed, however, that a great deal of information passes between officers and farmers through these media.

Group Methods:

113. Since the extension worker recognises that his effectiveness is greatly limited if confined to personal contacts with farm people, he tends to work increasingly through groups of rural people. This is particularly important in this Colony, where there are in all a total of only thirty-six (36) Extension Officers to cater for a rural population of over 300,000.

(a) Meetings:

114. A total of 636 meetings was called or attended by the staff (compared with 734 in 1954) to discuss agricultural topics, to introduce new ideas and to organise self-help and co-operative schemes. These included meetings of Regional Development Committees and Area Sub-Committees.

(b) Field Days:

115. These were designed for the purpose of method and result demonstrations and were most popular with farmers. Some were arranged also for school children. The locus of the field day was usually the Demonstration Station or Experimental Farm. The cost of lunches and of travelling expenses was met from Departmental funds. A total of six (6) Field Days was held compared with twelve (12) in 1954.

(c) Training Courses:

116. Through the generosity of the Foreign Operations Administrations, six (6) farm youths underwent "on-the-farm training" in the United States of America under the Young Farmer Training Programme. Their return passages to the United States of America were paid by the Local Government and they each received \$50 (U.S.) per month from the farmers to whom they were attached. They worked on farms where dairying and market gardening were emphasised.

(d) Agricultural Apprenticeship Scheme:

117. The Department continued the two-year Agricultural Apprenticeship Scheme. Two (2) apprentices completed their training and two (2) new entrants were admitted.

Mass Methods:

(a) Departmental Publications:

118. The most important "printed material" continued to be the Farm Journal; there was one edition. The editorial dealt with methods of the extension worker, subjects including frog hopper control, pig rearing, bacon and ham project, shrimp trade, fertilisers and the results of competitions.

119. Other publications included a Sugar Bulletin and the report on the Agricultural Census.

(b) Government Information Services'
Bulletins and the Daily Newspapers:

120. Very close and valuable co-operation was maintained with the Government Information Services and through that Department, with the Daily Newspapers, Press Conferences attended by the Director, Departmental Officers and visiting experts were arranged. Full publicity was given to projects and even to educational material

121. The newspapers co-operated by giving full 'coverage' to Field Days, Competitions and other efforts, and by publishing weekly a review of agricultural prices compiled by the Extension Service.

(c) Radio:

122. A 15-minute weekly radio programme was initiated during the year under the title "Spotlight on Farming". It introduced subjects of agricultural interest, and included talks by Officers and interviews with farmers.

(d) Agricultural Shows and Exhibitions:

123. The Department contributed exhibits of its work to the League of Coloured Peoples' Exhibition in Georgetown. Similar contributions were made to Exhibitions which were sponsored by the following Unions of Local Authorities with financial aid from the Department and assistance from its Officers with regard to organisation and judging of farm products:-

West Demerara Union of Local Authorities
Essequibo Union of Local Authorities
East Demerara Union of Local Authorities.

(e) Competitions:

124. The Department sponsored a colony-wide Livestock competition to stimulate interest in improved husbandry and breeding. Prizes in cash and kind were offered for calves, heifers, pigs and poultry. The response was satisfactory. The calves and heifers within the orbit of the Departmental Artificial Insemination Service were particularly outstanding.

Other Media:

125. Other media of extension included the use of posters for stimulating interest in the Artificial Insemination Service, for advertising competitions and for control of animal diseases and insect pests.

126. The British Council provided film shows in the country on several agricultural subjects, by arrangement with District Officers and Farm groups.

/Sales....

Sales of Agricultural Requisites:

127. The extension staff introduced to farmers various farm requisites, such as imported vegetable seeds, fertilisers, veterinary drugs and stock feeds. Stocks were kept at their offices and at District Demonstration Stations, and many items were taken to farmers by Instructors in their knapsacks. Moreover, the Marketing Division from which these goods were obtained, made direct sales in Georgetown and New Amsterdam and in the country via mail orders. Once the farmer was satisfied of their value, he frequently made his own arrangements for securing further supplies through normal commercial channels.

Pure Line Seed Padi:

128. The staff were responsible for the sale to farmers of pure line seed padi produced under supervision of the Department on the Government Land Settlement Scheme at Anna Regina.

129. The varieties distributed were Nos. 79, D.110, 85/42 and 52/37 and total sales were as follows:-

	<u>Bags (140 lb. net)</u>	<u>Value</u>
Berbice	520	\$ 4,026.88
Demerara	3,179	27,744.16
Essequibo	1,832	14,220.64
	<u>5,531</u>	<u>\$46,021.68</u>

130. In addition, farmers were encouraged to produce their own seed padi under a scheme operated in collaboration with the Rice Producers' Association. The following quantities were produced, bought subsequently by the Department and finally resold to farmers.

	<u>Bags (140 lb. net)</u>	<u>Value</u>
Berbice	123	\$ 824.90
Demerara	388	2,923.27
Essequibo	155	985.70
	<u>666</u>	<u>\$4,733.87</u>

131. Pure-bred poultry and livestock produced at the Departmental Farm in Georgetown were distributed through the Extension staff, and other supplies sold included economic plants, notably citrus seedlings and cocoa clones.

Co-operation with Government Departments and other Agencies:

Regional Development Committees:

132. A great deal of time was spent by officers in connection with the operations of the Regional Development Committees and their Area Sub-Committees. The staff attended many meetings, investigated applications for loans and assisted in the preparation of community development and self-help Schemes. It was estimated that at least a third of the time available to officers for official duty was spent in one way or another on the business of these Committees.

The Credit Corporation:

133. Much of the work done by Regional Development Committees was connected with the activities of the Credit Corporation. The staff gave special attention, however, to applications usually for large loans, referred direct by the Credit Corporation for examination and advice. A total of 2,308 loans for \$1,171,961 was issued to farmers by the Credit Corporation for the year.

Machinery Hire Pools:

134. Agricultural Superintendents served as Members of area Committees concerned with the operation of the Machinery Hire Pools. The equipment of these pools comprising bulldozers and draglines were used on hire, for clearing and draining new lands and reconditioning derelict estates. The main functions of the Committees were to determine priorities in view of the large number of requests from farmers, and to settle disputes arising from the nature and quality of work done.

Inspection for duty-free petrol:

135. The staff continued to be responsible for examining applications by farmers for 'duty-free' petrol for use in Agriculture. The quantity of petrol issued free of duty amounted to 292,271 gallons distributed as follows:-

Rice	-	170,958
Sugar	-	114,811 *
Ranching	-	3,328
Other	-	3,174

* Issued direct to sugar plantation on the drawback system.

Land Settlement Schemes:

136. Land Settlement Schemes benefitted from the general services offered by the field staff. Advice was given to managers and settlers on a wide range of agricultural matters. Special attention was paid to animal husbandry, the operation of communal and individual dairy cattle byres, castration of scrub bulls, the use of the Artificial Insemination Service, the cultivation of fodder grasses and control of parasites and diseases - notably worms by periodic drenching and tuberculosis and brucellosis by testing and the removal of positive reactors.

137. The staff maintained close interest and collaboration in the conduct of fertiliser experiments on rice by the Colonial Development and Welfare Soil Scientist. There were indications of useful results. Keen interest was evinced by management, settlers and farmers in the neighbouring districts.

Drainage and Irrigation Department -
Crop Valuations:

138. In order to relieve the staff in West Demerara, a crop valuator was appointed who undertook the valuation of crops destroyed or taken over by Government in the course of construction of Drainage and Irrigation works in the Boerasirie Extension Project. These valuations were used by the Drainage and Irrigation Department for the award of compensation to farmers.

/Numerous....

139. Numerous ad hoc enquiries from other Departments for valuation of crops were dealt with by the staff.

Local Authorities:

140. The staff maintained the usual close contact with Local Authorities. Officers and Instructors attended meetings and reported on agricultural conditions, gave talks on measures for improving agriculture and advertised new Departmental projects. Local Authorities permitted Instructors to use their offices for interviewing farmers, and co-operated generally in supplying data for agricultural surveys and censuses.

The Peasant Sugar-cane Farming Industry:

141. An Agricultural Instructor continued to be assigned specially to the peasant sugar-cane farming industry on the East Coast of Demerara. Restrictions in the world market restricted farmers from the extension of their cultivations.

142. The industry suffered severe damage from the froghopper pest, both yield and sucrose content being adversely affected. Total production for the year amounted to 2,800 tons sugar valued at \$307,586 compared with 3,210 tons sugar valued \$369,400 in 1954.

143. The Extension programme was directed towards increasing yields per acre by controlling the froghopper pest, distribution of planting material of high yielding varieties resistant to Leaf Scald disease, flood fallowing of fields, application of fertilisers and improving field practices.

Pests:

144. The Froghopper was the most destructive pest in the cane-farming areas; its control was difficult due to poor drainage conditions and lack of co-operative effort among farmers. A fund was started among farmers to be raised by a contribution of two cents for every ton cane produced for the purchase of agroicide mixture. 129 bags of the mixture, costing \$840, were bought during the year.

Distribution of Planting Material:

145. Planting material was in plentiful supply, farmers sharing with their neighbours instead of purchasing from estates as in previous years. Only 16 tons of planting material valued \$184 were obtained from estates compared with 150 tons bought in 1954.

Fertilisers:

146. There was a decrease in the use of artificial fertilisers; only 2,101 bags valued \$28,065 being used, compared with 2,564 bags in 1954.

Flood Fallow:

147. Little interest was shown in flood fallowing. This was attributed to the response obtained from the use of fertilisers and the desire of farmers to crop their land continuously owing to the small size of farm and the lack of new land for expansion.

Improving Standards of Cultivation:

148. The more important method used to educate farmers in improving their system of cultivation was advice on the spot by the Instructor. In addition, a competition was held between villages for the highest general standard of efficiency.

Work of Committees:

149. The Price-fixing Committee for farmers' canes continued to function. The Agricultural Chemist, the Chairman, made periodic tests of samples of juice taken by him at factories. Prices fixed by the Committee ranged from \$9.80 per ton to \$7.25.

150. The Central Cane Farmers' Committee met on several occasions and considered a wide range of matters affecting the Industry. The Agricultural Superintendent and Cane Farming Officer worked closely with this Committee.

BEEKEEPING

151. The beekeeping division was able to improve its service to beekeepers with the approval of a motor-car allowance for the Technical Assistant. A total of 401 visits were made and demonstrations and talks to schools given.

152. The Botanic Gardens Apiary was maintained at a strength of 89 colonies and 154 mated queens were produced. The majority were sold to members of the Beekeepers' Association at 80 cents each. Twenty-six (26) were sold with a nucleus for \$3.00 each.

153. The programme to encourage beekeeping with schools continued and a further six (6) were selected and given colonies, bringing the total to 18.

AGRICULTURAL EDUCATION AND INFORMATION

154. The Division of Agricultural Education was further expanded to include a section on Information, and in July, an Information Specialist under the I.C.A. Technical Assistance Programme was attached to the Division. The programme of this new section consisted of surveying the Colony's needs for information, applying the use of radio and newspapers to publicity, issuing publications of the Department and investigating the use of audio-visual aids.

School Gardens:

155. Schools were visited at regular intervals by the Agricultural Education Officer and by the Extension staff. Agricultural Instructors visited twice monthly and advised teachers and pupils.

156. School Gardening Competitions were held in the five main districts: Essequibo Coast, Essequibo Islands, West Demerara, East Demerara and the Upper Corentyne. The schools competed for individual prizes on a district basis, and for the Bannister Shield on a Colony basis. School gardening certificates were also awarded on a year-round assessment.

157. Two Field Days for school children were held at Agricultural Demonstration Stations. These Field Days were attended by Head Teachers, Gardening Teachers and children. Demonstrations were given by Agricultural Instructors on basic skills and practices needed for successful gardening, beekeeping and the establishment of tree crops. The cost of transportation of invitees and of light refreshments were paid for by Government.

Training of Teachers:

158. First and Second Year male students of the Government Training College received weekly lectures from the Agricultural Superintendent (Education).

159. Four Agricultural cadets were taken on in the Department for preliminary training before enrolling at the Eastern Caribbean Farm Institute. They were assigned to various divisions for varying periods, and also attended a special course in "Family Living" given by an FOA Area Home Economist.

Radio:

160. A weekly 15-minute radio programme designated "Spotlight on Farming" was started late in the year. It dealt with the following subjects: rice fertilisers, acetic acid treatment in rice milling, Newcastle disease of poultry, pig-feeding, experimental poultry house, care of farm machinery, plant disease survey, culling of poultry, coconut caterpillar, fodder plots, poultry lice, inland fishing, the Artificial Insemination Service and citrus orchards.

Audio-visual aids:

161. Two cameras were obtained for producing photographs to be used in illustrating lectures and talks at meetings with farmers. A Technical Assistant was specially trained for this work.

FARM YOUTH TRAINING

162. A division of Farm Youth Training was established within the Extension Service under the supervision of a Senior Agricultural Superintendent with special training in the subject. Concurrently, the International Co-operation Administration of the United States of America provided the services of a Specialist for a period of two years.

163. The purpose of the division is to establish 4-H and Young Farmers' Clubs throughout the Colony. Provision was made for the recruitment of six (6) Farm Youth Instructors (3 women and 3 men) in 1956 when the programme will be fully implemented. The initial staff of I.C.A. Specialist, Farm Youth Superintendent and Assistant Farm Youth Superintendent (Home Economics) made a survey of requirements during the year, organised two pilot clubs, assembled and prepared literature for distribution to the staff and to Club members.

AGRICULTURAL DEMONSTRATION STATIONS AND STUD UNITS

164. Agricultural Demonstration Stations and stud units were maintained and supervised by Senior Extension Officers in the larger districts as an important integral part of the Agricultural Extension Programme. The main functions of these Stations were to provide farmers with some or all of the following facilities:-

- (a) A depot for the sale of certain agricultural and veterinary supplies.
- (b) Seed multiplication and distribution.
- (c) Observation and demonstration of new varieties and methods.
- (d) Stud Unit for improving the breed of livestock.
- (e) A meeting-place and advisory centre.

165. Farmers continued to take full advantage of these services. The following is an account of the work done on these stations.

Demerara - Paradise Station:

166. Demonstration plots of suitable fodder grasses and legumes were maintained and planting material distributed free of cost to farmers.

167. The Station distributed free planting material in the following amounts: 200 lb. seed, 235 plants, 7,290 slips and 1,600 lb. cuttings. These included peas and beans, cucumber, egg plant, cohro, tomato, onions, spinach, mint, thyme, sweet potatoes, fodder grasses and legumes.

168. A Jack donkey was maintained for service to mares.

169. Three dairy cows were kept for the purpose of demonstrating good husbandry and the soiling system.

Berbice - No. 63, Whim and Bath Stations:

170. Apart from their demonstration value, these Stations have served as the main sources of planting material of certain crops for distribution to farmers in the county. Thus, No. 63 was the principal supplier of citrus plants, Whim for grasses and fodder plants and Bath for vegetables. The Bath Station was closed down at year end with the intention of establishing another Station at a more convenient location.

171. The following table shows the quantities of planting material sold:-

	<u>1954</u>	<u>1955</u>
Vegetable seeds	2,732 pkts.	2,760 pkts.
Citrus plants	1,442 plants	1,321 plants
Coconut plants	394 "	654 "
Vegetable seedlings	8,003 "	2,383 "

172. In addition, some 335 lb. of seed of the following vegetables were distributed free of cost: bora, sine-bone, butter and lima beans, black-eye, urid, mung and pigeon peas, egg plant, shallots, Indian kale, sweet potato cuttings, poi spinach, ochro and squash.

173. The following studs were kept at the Stations: one boar at No. 63; a boar, a bull, a Kentucky Jack and a ram at Whim. Response by farmers was disappointing. The boars did 47 services, the bull 8, the Jack 3 and the ram 3.

174. Two cows were maintained at Whim to demonstrate the soiling system and improved methods of husbandry.

Essequibo Nurseries - La Belle Alliance,
Maria's Lodge and Charity:

175. The La Belle Alliance Nursery distributed 1,372 budded citrus plants during the year. It was closed down at year end on account of its inaccessibility, and the fact that a large nursery was established at Maria's Lodge. The Maria's Lodge nursery distributed 1,050 budded citrus plants during the year.

176. The Charity nursery distributed 1,969 Liberian coffee seedlings during the year.

177. Maria's Lodge was converted into a citrus nursery.

Stud and Soiling Units:

178. These Units were closed down in September when the Artificial Insemination Service was introduced.

179. Good use was made of the boars loaned to the South Essequibo Pig Rerers Co-operative Society and the Dartmouth Livestock Group.

Suddie Vegetable Demonstration Plot:

180. This Demonstration garden was replaced by taking in a small section of the Maria's Lodge nursery. The vegetables would be sold to the Suddie Public Hospital to supplement their needs.

Mazaruni-Potaro:

181. The cacao trials confirmed the previous indications that the ICS clones were not suited to the conditions at Bartica. Replacement by citrus continued.

182. The small plot ($\frac{1}{4}$ acre) of citrus, established many years ago continued to thrive and produced 17,511 oranges and grapefruit. It is noteworthy that citrus is becoming rapidly a major crop in the area, largely as a result of its success on the station.

183. 525 budded orange and grapefruit plants were sold to farmers from the nurseries.

184. A small flock of poultry was maintained on the open range system in the citrus orchard for demonstration purposes. 1,387 eggs were produced. Poultry rearing is becoming an important minor industry in the district.

185. Five cows were kept to demonstrate husbandry and the soiling system. 10,561 pints of milk were produced. The pens in which these cows were housed, the fields of guatemala, para and locuntu grass, the equipment and methods of handling were good examples to farmers whose interest in dairying has increased appreciably.

186. Work at this Station has shown that citrus and intensive dairying are the answers to the agricultural needs of the district. This system has become the accepted pattern for development.

North West District - Hosororo Agricultural Station:

187. This is the largest Station attached to the Extension Service and its activities were maintained and even intensified. The programme of work included general maintenance work, field trials, investigations with crops and livestock, production of breeding stock and planting material, field days and demonstrations.

Citrus:

188. Maintenance of the orchards continued. Contour drains were reconditioned, fields weeded, trees cleaned, pruned and mulched. Fertilisers were applied on two occasions.

189. The trees showed marked and encouraging improvement, and physiological deficiencies were less apparent. Leaf paintings with 0.5% solution of the more common trace elements continued. The establishment of a grass cover crop was begun during the year.

Cocoa:

190. Establishment and maintenance of the trial plots and propagation of planting material continued. The trees made good progress and some came into bearing, clones proving to be better developed and earlier matured than seedlings. 279 lb. of beans were marketed.

191. These trial plots have served to focus great interest on cocoa farmers showing keen interest in the work being done and adopting some of the practices. The excellent condition of the trees and the signs of early maturity have impressed farmers all around the area.

192. Work on the propagation unit was fully maintained. Propagator space was increased, another hardening bin erected and the hardening floor extended. During the year, 955 clonal plants were produced, of which 326 were planted on the Station and 192 distributed free to farmers.

Coffee:

193. Two plots of Liberica and Robusta were established on the swamp. Shade was provided by plantain and cassava. The plants were twice fertilised during the year.

Coconuts:

194. Maintenance of the trial plot continued.

A setback was noted early in the year, but was soon overcome by weeding, moulding and mulching and fertilising.

Cashew:

195. The trees maintained excellent condition, responding favourably to half-yearly dressings of Ammonium Sulphate and mulches of dried grass. The plants came into production at 18 months, but bearing was sporadic.

Avocado Pear:

196. Reconditioning of the old field continued, trees responding well to dressings of fertilisers and grass mulches. This field was used for the production of budwood.

197. A new field of budded plants was established in mid-year, using plantain and cassava as temporary shade.

Castor bean:

198. The castor bean trial showed fair growth and yields, trees coming into bearing at four months and continuing to bear for three months. Seed was used to plant a proper field trial and to supply interested farmers.

Blackpepper:

199. Good results were obtained from the blackpepper trial. 47 clonal plants were produced, ten of which were distributed to farmers and the remainder planted on the Station.

Cotton:

200. An observation plot of cotton was planted at year end.

Grasses:

201. Plots of Guatemala and Para grass were maintained on the swamp. Growth was good and yields high. These plots supplied fodder for the Station's livestock and planting material and demonstration to farmers.

Economic Nurseries:

202. Propagation and distribution of planting material continued. The nursery on the swamp proved satisfactory. The increased demand for planting material was fully satisfied. Chiefly distributed were citrus, cocoa, avocado, nutmeg, blackpepper, cashew, castor bean, plantain and banana suckers, cassava, vegetable seeds, seedlings and cuttings.

203. In addition to the regular sale of plants, there was some free distribution. Farmers, Government compounds, Indian Settlements, Missions, all benefitted from gifts of plants, seeds, suckers, cassava sticks, budwood, etc.

204. Another function of the nurseries was the collection and distribution of seeds, seedlings, budwood, fern roots, moss, etc. to other Divisions and Districts.

/Vegetable....

Vegetable Garden:

205. The vegetable garden was maintained at full capacity. Planting material from this plot assisted in the successful continuance of the "vegetable garden drive". This was also assisted by the facilities in demonstration which the plot provided.

206. A system of tethering cows at night inside the plot was practised and proved effective in restoring fertility. It attracted the attention of farmers who had their own cows.

Reclamation of Swamp Area:

207. A Field Assistant was assigned specially for supervising the trials on this area.

208. Three trials with maize were planted and two harvested. Another trial with rice was not so successful; many of the grains proving empty. A trial with coffee was laid down to compare the performance of the Robusta and Liberica varieties.

Cattle:

209. A herd of one breeding bull and five cows was maintained. During the year six calves were born, three being sold to local farmers and three sent to the Georgetown Farm.

210. The cattle were used for demonstration and breeding purposes, they utilised un-marketable produce, supplied manure and permitted observations on types suited to the district.

211. The demonstration value of these animals has been of substantial value in the North West District where cattle are scarce.

Donkey:

212. This animal maintained excellent condition, and his use as a pack animal served as an incentive to hill farmers, one of whose difficulties has always been transportation.

Sheep:

213. Progress during the year was better than in 1954. Though maggots, intestinal parasites and mange were still encountered, a greater deal of control was achieved. Rotational grazing in the orchards was still continued.

Turkey:

214. A pen of four birds was maintained. Although excellent health and condition prevailed, egg production and fertility were very disappointing. Only 48 eggs were produced, and none of these hatched.

Chickens:

215. Pens of Rhode Island Red and of Barred Plymouth Rock were maintained for demonstration purposes and the production of sitting eggs.

/The....

The birds showed excellent health and condition and produced well. Their care, housing, paddocking and production provided demonstration material. It is pleasing to note that more farmers have adopted some of the practices in vogue on the Station. 1,303 eggs were produced.

Buildings and Roads:

216. New quarters were provided for the Captain-Engineer. Routine repairs were done to quarters, cottage, packing house, pens and paddocks. A drying shed was erected. The approach to the Station was resurfaced with laterite and the road leading to the swamp completed.

B. RESEARCH AND EXPERIMENTATION

(i) Financed from Local Funds

217. The Research Services of the Department together with the Officers of the Sugar Experiment Station and Officers seconded to the Department on special projects were concerned primarily with the major crops, Rice and Sugar. A property on the East Coast, Demerara, which is to become the Central Agricultural Station of the Department was purchased at year end. When this Station is developed, it will be possible to give research activities a wider scope than is at present possible.

SUGAR CANE

General:

218. The research work of the Sugar Experiment Station is fully reported each year in the Annual Sugar Bulletins. The main line of work is varietal testing, but cultivation and fertilizer experiments are also carried out. In addition to the work on the Sugar Station, the Booker's Group of Companies has set up its own research organisation, the functions of which become generally to the industry through the Sugar Cane Research Sub-Committee and at West Indian Sugar Conferences.

Variety Testing (Sugar Agronomist)

219. Trials conducted during 1955 have confirmed previous observations regarding B.45137 and B.43413. These two varieties have yielded well on clays, on which soil type the former has been especially outstanding as a strong ratooner. Unfortunately, neither is attractive, being of smaller diameter and slightly lower Pol.% cane than B.41227.

220. B.47258 performed well against B.41227, (the present dominant variety in the colony). It performed well on clays and has a higher Pol content than average.

221. B.37161 remained the best all round variety for pegassy clay soils.

222. Trials with the major commercial varieties of Java and Mauritius P.05.2967 and 3016, M.134/32, M.213/40 and M.423/41 have shown that these varieties are considerably inferior to standard local varieties.

/Cultivation....

Cultivation Experiments:

223. The cultivation experiment, designed to compare the standard estate system of hand cultivation with the Cameron-Williams system of cultivation, was reaped as second ratoon during 1955. The results to date indicate that with the exception of B.41227 the yields from the Cameron-Williams system are significantly higher for plant canes, not significantly higher for first ratoons, and lower for second ratoons. Moreover, the quality of canes produced by the standard estate method is better.

224. One of the objects of the Cameron-Williams system is to bring saline sub-soil to the surface over a period of years, thereby allowing excess salts to be leached out and removed with the view to producing ultimately a soil approximately two feet deep free from excess salts and having a good structure to that depth.

Fertiliser Experiments:

225. Experiments conducted showed that foliar analysis has good possibilities for diagnosing nutrient deficiencies in the case of nitrogen and phosphate in the sugar cane under local conditions. Juice analysis also offers a suitable approach for phosphate requirements provided allowance is made for the effect of variety. Considerable work remains to be done, however, to determine the most suitable plant tissue or combination of tissues to be used as an index of the nutrient status of the plant, the most suitable sampling age for these tissues, the effect of weather and soil conditions in interpreting the results, and the influence of plant cycle and cane variety. Nevertheless, sufficient information is already available to justify the use of the method on sugar estates.

Growth and Ripening Studies:

226. Varieties B.41227, B.37161, D.158/41 and D.37/45 were studied in regard to growth and ripening habits.

227. Rain at harvest time affected B.37161 most adversely while B.41227 is most tolerant. So called 'early' or 'late' maturity quality of varieties was found to be dependent on a number of ecological factors and maturity tended to vary in relation to the response of varieties to particular factors or combination of factors.

Insect Pests

228. The main pests of sugar were Froghopper (Aeneolamia flavilatera) and the Moth Borers. The former is regularly controlled on estates by dusting with Benzene hexachloride dusts while biological control of the Moth borers operates effectively except in the case of (Diatraea canella). The tachinid parasite (Palpozenillia palpalis) was introduced in an effort to control (D. canella).

RICE

Rice Breeding and Variety Trials (Economic Botany Division)

Breeding:

229. The rice breeding programme for the production of non-lodging varieties suited to mechanisation, including combine harvesting, continued. The work was carried out on the Rice Station in the Botanic Gardens and on the site of the New Central Agricultural Station for the Autumn planted crop.

230. A total of 217 introduced and local varieties were grown. 166 seeds were produced from crosses. 12,105 selections were produced in generations ranging from F₁ to F₉. The large majority were straight crosses in the more advanced generations.

231. On the Central Agricultural Station 13,000 hybrid plots were planted and two lattice square trials.

232. In the more advanced generations many erect non-lodging families have been produced which show great promise. Single row yields of promising selections of these families have shown marked increases over standard local varieties, but true assessment of yield must await proper experimental plot and field trial results.

Variety Trials:

233. Three newly bred families, Nos. 19, 115 and 21 were tested for yield in 4 randomised Blocks of 16 plots each against No. 79. All plots were transplanted with two spacings 6" x 6" and 9" x 9". Fertilizer 2 cwts. Sulphate of Ammonia per acre and 1 cwt. per acre Superphosphate was applied. Family 19 gave the best yield (2,594 lb. per acre) which was significantly greater than 21 (1,945 lb. per acre).

234. Two 4 x 2 x 2 Factorial trials were carried out on the newly bred families 19, 21 and 115 against No. 79. One trial was planted broadcast and the other transplanted. Seed rates were 50 lb. and 70 lb. per acre for the broadcast trial and spacing 6" x 6" and 8" x 8" for the transplanted. The fertilizer treatment was 2 cwts. Sulphate of Ammonia per acre and 1 cwt. triple Superphosphate per acre versus nil.

235. Family 115 gave a markedly superior yield in both broadcast and transplanted trials. Other families gave yield similar to No. 79 except Family 21 (broadcast) which was much lower.

	Varieties					
	79	19	21	115	P=.05	P=.01
Lb. per acre (broadcast)	2,089	1,937	1,233	2,569	268	362
" " " (transplant)	1,830	1,736	1,947	2,711	532	719

/Average....

Variety	Average Days to Flower	
	Broadcast	Transplant
19	100	114
21	97	100
79	86	92
115	80	90

The period to flowering was generally longer with transplanted rice and was not influenced noticeably by fertiliser application. Both for broadcasting and transplanting families 19, 79 and 115 showed least ground coverage and weed control. Fertiliser application encouraged better ground coverage but responses were significant only in the broadcast experiment and showed up with all varieties.

Fertiliser experiments on Rice (Agricultural Chemist)

236. Experiments were carried out on the Cane Grove and Vergenoegen Land Settlements. The 3³ Factorial at Cane Grove followed up the 1954 experiment at Pasturelands on the same site. Treatments in both years were as follows:-

	Cwts. per acre		Cwts. per acre		tons per acre	
	N		P		L	
	1954	1955	1954	1955	1954	1955
0	0	0	0	0	0	0
1	2	1	1	$\frac{1}{2}$	2	0
2	4	2	2	1	4	0

237. The linear response to Phosphate was highly significant and the $\frac{1}{2}$ cwt. treatment as effective as the 1 cwt. treatment. The minimum regular application for the control of free Aluminium toxicity on these soils requires further study.

238. The 2⁴ Factorial experiment at Vergenoegen again indicated a highly significant response to Phosphate application. The application of Sugar Cane Molasses did not give a significant response.

Experiments on "Japanese" method of cultivation (Economic Botany Division)

239. Two field experiments the first Spring harvested and the second Autumn harvested were carried out to investigate the much publicised Japanese method of intensive cultivation of rice.

The system advocates the growing of seedlings on raised manured nursery beds, planting in spaced rows, control of the number of seedlings per hole with organic and artificial fertilisers in the field and the maintenance of proper weed control. The main difference from local transplanting practice is the difference in nursery cultivation, local treatment being to raise seedlings in underwater nurseries after germination (45 lb. seed per 720 square feet) without the use of manure. In these experiments the raised nursery beds for the "Japanese" seedlings were sown with seed in rows at the rate of 1 lb. per 100 square feet after 82 lb. compost, 1 lb. Sulphate of Ammonia and 1 lb. of Superphosphate were incorporated in the soil. The beds were watered as required.

240. The local transplanting technique was defined as 3 to 4 seedlings per hole at a spacing of 8" by 8" for these experiments and was used in comparison with all combinations of 6", 9" and 12" spacings with 1, 2 and 3 seedlings per hole for the Japanese method during the Spring harvested experiment. In the Spring harvested experiment the field manuring for the "Japanese" nursery seedlings was 2 cwts. of Sulphate of Ammonia and 2 cwts. of Triple Superphosphate split into two equal applications, the first before transplanting four-week-old seedlings and the second three weeks after transplanting local seedlings. The Autumn harvested experiment was a 4 x 3 Factorial design with combinations of nursery practice and field manurial treatments as follows:-

- (a) Raised fertilised nursery
- (b) Wet fertilised nursery
- (c) Wet unfertilised nursery.

Field Manuring:

- 241.
- (a) No fertiliser.
 - (b) Pen Manure 3.4 tons per acre at transplanting.
 - (c) Sulphate of Ammonia and Superphosphate at 2 cwts. per acre each ($\frac{1}{2}$ at transplanting, $\frac{1}{2}$ at 4 weeks afterwards).
 - (d) Combination of (b) and (c).

Variety D.110 was used for these experiments.

242. The Spring harvested crop gave no significant differences between plot yields and this is attributed to a physiological condition which occurred unevenly over the experiment. There was some evidence that seedlings from the Japanese nurseries gave a reduced number of tillers.

243. The Autumn harvested experiment showed signs of yellowing and overgrowth of some tillers, a physiological condition the same as the Spring crop experiment in plots with seedlings from raised nursery beds.

The nursery treatment had a significant effect on yield as follows:-

	Wet un-fertilised Nursery	Raised Japanese Nursery	Wet fertilised Nursery	P= .01
Lb. per acre	2,062	1,363	2,049	325

The field manurial treatments gave no significant effects.

Insect Pests (Entomologist)

244. A survey of the moth borer infestation of rice at the Mahaicony Rice Development Scheme was carried out. Rupela albinella Cram and Diatraea saccharalis F. were found, together with a third pyralid species not yet identified. Data has been gathered on the habits and natural control by parasites and diseases of these three species and it would appear that:

- (1) the average overall percentage of bored stems is 6 - 7%;
- (2) an increase of this percentage to 14% in one variety may be due either to varietal susceptibility or the effects of transplanting;
- (3) the effect of panicle development may vary with the species involved;
- (4) there is a carry-over of the borers in the drop seed crop.

It is possible that the date of sowing and the method of propagation may affect the percentage of bored stems. The actual grain loss involved remains difficult to assess and is further complicated by the presence of three species.

Processing of Rice (Agricultural Chemist)

245. Acetic acid was imported and distributed to millers by the Rice Marketing Board following the successful demonstration that this acid, at a concentration of 0.3 to 0.4%, will prevent the development of unpleasant odour in paddy being soaked for parboiling.

246. Preliminary laboratory work has shown that Acetic acid used in conjunction with Calcium Hypochlorite and Potassium Meta-bisulphate may enable the soaking period to be prolonged to 10 - 12 days before unpleasant odour develops.

Rice Storage Investigations:

247. A scheme was started to investigate the insect pests of stored padi and rice and to recommend measures of control. It was financed equally by Government, the Rice Marketing Board and the Rice Development Company. An Entomologist was appointed in April and his work during the year included the assembling of relevant information, the setting up of a laboratory, initial surveys and investigations.

COFFEE (Agricultural Chemist)

248. Observation fertiliser trials which showed a marked response were carried out on Liberian coffee of unhealthy appearance giving low yields on the pegasse soils of the Pomeroon and Canal No. 1 areas. The soil in the Pomeroon is deep with high exchangeable aluminium and water soluble sulphates while the soil in Canal No. 1 is shallow. Applications per tree were 3 lb. pulverised Limestone, 2 lb. Triple Superphosphate, 1 lb. Muriate of Potash and $1\frac{1}{2}$ lb. Sulphate of Ammonia applied 3 weeks after the lime.

CITRUS (Agricultural Chemist)

249. Application of a mixed N.P.K. fertiliser including lime resulted in marked improvement of unhealthy non-bearing citrus on the deep pegasse soil of the North West District. On the silty clay of the Demerara River at Pln. Georgia yields were greatly increased by application of a complete fertiliser.

VETIVERT OIL

250. Roots grown at the Ebini Livestock Station were sent to the Colonial Products Laboratory where they were distilled for extraction of the oil. Reports from interested firms were encouraging. Yield was 4.8 per cent.

COCONUT TRIALS (Agricultural Chemist)

251. Investigations were started into the frequent deaths of mature coconut palms growing on soils of low density, at one time of a peaty nature. Lime, Sodium Chloride, Magnesium Sulphate and Fritted trace elements were used in addition to Sulphate of Ammonia, Triple Superphosphate and Muriate of Potash applications. No conclusions have been drawn, but it is possible that the condition may be pathogenic and not nutritional.

EXPERIMENTS ON PEGASSE SOIL (Agricultural Chemist)

North West District:

252. Work was continued at Hosororo, North West District, on the pegasse soils (tropical peat) which lose fertility rapidly after a short period of cropping. An area where the pegasse soil was partially depleted in fertility was planted with two 24 Factorial fertiliser trials harvested in April and November respectively. Treatments were as follows: 2 tons Limestone per acre, 3 cwt. Triple Superphosphate per acre, 2 cwt. Sulphate of Potash per acre and 3 cwt. Sulphate of Ammonia per acre. Poor germination spoiled the first experiment and the second experiment was affected by rats and stem borers. Maximum yield in a plot with reasonable stand from the first experiment was 2,745 lb. per acre. The second experiment gave a significant and negative response for the N.P.L. interaction. The mean plot yield was 1,409 lb. per acre.

253. A 24 Factorial trial using rice as the indicator crop was also carried out on the above soil type. Treatments were: 2 tons Limestone per acre, 2 cwt. Sulphate of Ammonia per acre, 2 cwt. Triple Superphosphate per acre and 1 cwt. Muriate of Potash per acre.

The mean yields for treatments were as follows in bags (140 lb. net) per acre.

(1)	n	p	n	k	pk	pk	npk
3.9	5.7	6.0	6.3	5.9	7.4	8.0	5.0
1	nl	pl	npl	kl	nkl	pkl	npl
7.7	8.2	11.4	6.4	7.8	9.0	7.1	6.9

254. The response to liming was highly significant. The N.P. interaction was significant and negative. This latter effect occurs because either the P. or N. application alone increases the yield of paddy, but the application of both simultaneously does not result in any yield increase compared to the plots receiving neither N. nor P.

PASTURE AND FODDER (Economic Botany)

255. Work on this subject is very limited by space. It is to be expanded considerably on the new Central Agricultural Station at Mon Repos.

256. The most promising grasses on the coastal clays are Para Grass (Brachiaria mutica) and Locuntu Grass. (Ischaemum timorense). The legumes (Centrosema pubescens), (Pueraria phaseoloides) and Indigofera subulata show promise.

257. Cutting trials were carried out on these species either pure or in mixture.

Average Centrosema pubescens 3 and 4 month cuts - 5.32 tons per acre

Average C. pubescens and B. mutica 3 and 4 month cuts - 8.61 tons per acre

(P. phaseoloides and) 3 month cut - 5.79 tons per acre
(B. mutica mixture) 4 month cut - 7.71 tons per acre

Ischaemum tinorense 3 month cut - 6.88 tons per acre

258. Crude protein percentages of dry matter were as follows:

<u>C. pubescens</u>	3 months	-	23.40%
<u>C. pubescens</u>	4 months	-	25.11%
<u>C. pubescens</u> and)	3 months	-	21.54%, 18.37%
<u>B. mutica</u>)	4 months	-	14.57%, 20.06%
<u>P. phaseoloides</u> and)	3 months	-	20.06%
<u>B. mutica</u>)	4 months	-	13.17%
* <u>Ischaemum tinorense</u>	4 months	-	4.69%

* This grass requires frequent grazing or it becomes woody.

JUTE

259. Government provided the sum of \$76,000 for the continuation from October 1955 to March 1956 of the jute

/experiments....

experiments which were being conducted by the Berbice Fibre Research Company. The experiments have shown that jute can be grown successfully in British Guiana, and that there are good prospects of its rotation with rice or legumes. Considerable information on the use of machinery in the field and in primary processing has been obtained. Future work on this crop will emphasize increasing the economic efficiency of production in order to establish whether the crop can be introduced into local agriculture.

B. RESEARCH AND EXPERIMENTATION

(ii) Financed under Colonial Development & Welfare Schemes

COTTON INVESTIGATIONS (D.2516)

260. These investigations started with the appointment of Mr. C.H. Brown, under a Colonial Development and Welfare Grant, to investigate the possibilities of the economic production of cotton. His first visit to the Colony was on 11th May and he arrived to take up residence here on 20th August, 1955. He has to be absent for roughly a month at a time, twice yearly in January and July, to visit British Honduras which also comes within the terms of his contract.

261. Previous work on cotton indicated the possibility of two crops a year of annual types, with sowing periods roughly at end of April and end of October, for harvest in the expected dry periods of September to October and March to April. It was decided provisionally that both these periods should be tried. Although on his first arrival it was already late for the Spring sowing, hurried preparations allowed plots to be put down on Cane Grove, Vergenoegen and Anna Regina Land Settlements and small beds at Agricultural Stations at Whim, Paradise and Suddie. All these were sown later than the optimum. Weather conditions for the season appear to have been normal though the dry set is somewhat early in August. This combined with the late sowing to reduce the available length of the growing season.

262. Seeds of several varieties of American and Sudan Egyptian were available, to which were added two of the modern Sea Island types which had not been tested in earlier trials.

263. Earlier trials also having apparently given several gaps in stand, closer spacings and higher seed rates than those used earlier are being tried.

264. A trial on pegasse land showed that cotton would not grow on this as it stands. A small manuring trial indicated improvement with liming and phosphate, and all future trials on pegasse soil will be treated similarly. Satisfactory growth was obtained from Sea Islands and American types at Cane Grove and from Sudan S. at Anna Regina. Vergenoegen results were unsatisfactory.

265. On Agricultural Stations good growth was obtained everywhere.

266. No insecticidal treatments were at first planned, the plots being left for pest observation. Jassids and stainers were the main pests found, the latter doing particular damage and causing definite crop loss in some places. It was, however, clear that the incidence of these pests is variable. Some insecticide tests at Cane Grove showed that control is possible, and attempts will be made at full control with later crops. After successful control has been achieved, the economics of this will be studied.

267. A gin has been installed provisionally in the Processing Factory and a Land Rover purchased.

268. Autumn sowings on both Land Settlements and Agricultural Stations have been made on a more extended scale and a few private growers are now showing interest. Arrangements have been made with the Produce Depot to purchase any cotton offered at a price of 30 cents per lb. of lint, at which price there is a local market for upholstery.

269. Samples of several varieties have been sent to Reynolds & Gibson, a Liverpool firm of brokers, who have offered to co-operate with us. Provisional comment on their quality is favourable, which is in line with earlier records of cotton grown in the Colony.

270. A series of small samples have been distributed to missions on several of the rivers from which it is hoped to draw conclusions as to what possibilities the river lands show, and which is the best type to try there.

271. A collection of perennial plants has been made both from coastland gardens and from the interior. These were sown in November in a perennial plot established at Cane Grove with the following additions:-

Four types from E.C.G.C. collection.

Perennials from North Brazil and Cariacou

Tanquis from Peru.

Fruiting from these perennials is not expected before next autumn. They will be studied to get some idea of the possibility of re-establishing perennial cotton in the Colony, and if so which type.

HOSORORO EXPERIMENT STATION (D.2319)

272. Progress on this scheme was limited by the failure to recruit an Agricultural Officer and by local opposition from a minority in regard to clearing of bush for the development of the Station. Nevertheless, the District Extension Officer who is in charge of the Station laid down a large number of trials with fodder crops, rice, black pepper, cotton, corn, cacao, citrus, avocado, coconuts, nutmeg, coffee and vegetables. Work was done also in developing poultry, sheep and dairy cattle.

273. A Training Course was held for Amerindian Leaders. Demonstrations and Field Days were held for farmers and school children. The Station supplied a wide range of planting material to farmers.

EBINI LIVESTOCK STATION (R.336A)

The Herd:

274. The herd was maintained in good condition and the end of year tally was as follows:-

Calves	..	..	..	123
Heifers	..	..	..	60
Steers	..	..	..	76
Cows	..	..	..	247
Bulls	..	..	..	6
Oxen	..	..	..	6
Young Bulls	..	..	..	23
Total	..	..	..	<u>541</u>

Calving percentage - 50.

275. Calves from the Sahiwal and Brahma breeding units showed excellent growth. The young Santa Gertrudis animals received from Texas for the Station acclimatised fairly well.

276. 30 steers yielding 11,035 lb. of beef were slaughtered on the Station for supplying the Reynolds Metal Company. All hides were tanned on the Station and were used to meet the ranch requirements.

277. The herd was tested for Tuberculosis in September and the three doubtful reactors slaughtered.

Weather Conditions:

278. The total rainfall for the year was 106.63 inches compared with 117.44 inches in 1954.

279. The seasons were fairly well defined but December was wetter than normal. It was possible to maintain a sufficiently regular rotational burning to provide the necessary green bite for the herd during the comparatively dry and hot spell from September to November. Regular meteorological data were kept and emphasized the small variations. Mean shade temperatures were Maximum 88°F. and Minimum 71°F. (Variation Maximum 92°F., Minimum 68°F.). Mean relative humidities were as follows:-

7.00 a.m.	-	95%
1.00 p.m.	-	69%
6.00 p.m.	-	80%

A heavy downpour of 6.66 inches of rain in 3 hours in August and a number of other heavy storms served to emphasize the dangers of soil erosion on the savannahs. Only the gentlest of slopes should be cultivated (erosion has been noted on slopes of 1 in 200), and it is most desirable to develop sward rather than tufted grasses on imported pastures.

Buildings and Works:

280. The main achievement was the completion of the barn which is 80' by 30' and has two rooms and kitchens for workmen, fertiliser store, lock up store for tools and ample shelter for all tractors and machinery.

281. A pumped water supply from the nearby Ebini Creek for all dwellings, barns, etc. and a number of the paddocks was installed.

282. A tan house and tanks were erected and the weigh-bridge installed at the corral.

283. The fencing of the range into 9 main units was completed. Fencing was also carried out on a new home paddock and the airstrip.

Home Paddocks:

284. A good deal of attention was paid to the management and extension of the home paddocks. These now consist of 8 units totalling 99 acres. 89 acres are fertilised and planted with improved types of grasses and legumes and 10 acres are taken up by mowing and burning trials on the unimproved savannah. The main treatments given were:

(a) weed control using 2.4-D;

(b) mowing; and

(c) the application of phosphatic and nitrogenous fertilisers.

285. An 8 acre riverain paddock has been established.

Research:

286. Work carried out on the research programme was as follows:-

1. Mineral Deficiency Studies:

287. Soil and herbage analyses indicated Copper, Cobalt and possibly Molybdenum to be the main trace elements deficiencies. It is apparent that the real proof of these deficiencies, their significance regarding livestock production and the study of methods of overcoming them depend on the results of mineral feeding trials. Weighing technique on the wild range-fed steers to be fed varying mineral mixtures, with and without trace elements, was being studied at the end of the year.

288. An observation trial was laid down on the natural savannah to study the response to applications as follows:-

- (1) 3 cwt. per English acre of basic slag.
- (2) 1.5 cwt. per acre of Triple Superphosphate.
- (3) 1.5 cwt. per acre of Triple Superphosphate
- 7 lb. Zn SO₄ per acre.
- (4) 1.5 cwt. per acre of Triple Superphosphate
- 7 lb. Zn SO₄ per acre.
- (5) 1.5 cwt. per acre of Triple Superphosphate
- 2 oz. MoO₃ per acre.
- (6) 25 cwt. refined Na Cl per acre.

/Treatment....

Treatment shows a dark green response but selective grazing has tended to mask other early effects.

2. Fertiliser Trials:

289. Two new trials on kinds and rates of fertilisers were laid down leaving three trials in existence at the end of the year. The only data available at the end of the year was from a 1954 experiment on natural savannah sward. There was no significant residual response to phosphate recorded.

3. Mowing and Burning:

290. The experiment laid down in 1953 to study the effect on burning and mowing natural savannah under ungrazed conditions at 6, 12 and 18 month intervals is giving yield figures which may be of eventual significance to range management. Conclusions cannot be drawn from the yields until the full cycle is complete.

4. Trials of Grasses, Legumes and other Crops:

Grasses:

291. The main grasses being grown on the improved paddocks at Headquarters are: (Paspalum notatum) Bahia Grass, (Axonopus compressus) and (Axonopus compressus var. affinis), (Melinis minutiflora) Molasses Grass, (Hyparrhenia nipa) Jaragua Grass, (Digitaria decumbens) Pangola Grass.

292. Pensacola Bahia Grass seed sown on one paddock germinated poorly and no conclusion could be drawn from the attempt to seed this grass rather than plant by sprigging.

293. Pangola Grass has shown great promise right from first introduction in 1954. A fifteen-acre paddock was planted during the year but the response to an October fertiliser application proved disappointing.

294. (Brachiaria decumbens) is another grass with a strong stoloniferous habit which is being planted beyond the nursery stage. Others are (Pennisetum pedicellatum) and (Pennisetum polystachyon) but these two grasses are tufted and seem rather less desirable.

295. It was decided to discontinue trials with Sorghums Teosinite (Euchlaena) and Coix during the year.

296. A grass garden for newly introduced species was established near headquarters for ease of regular observation.

Legumes:

296. Cajanus indicus (Pigeon peas) showed great promise as a legume on some of the better soils. (Vigna sinensis) Cow peas were also grown and gave a good crop. Mole crickets made establishment difficult. (Pueraria phaseoloides) tropical kudzu grows well at Ebini with fertilisers. (Stylosanthes gracilis) is a newly introduced legume showing promise. (Desmodium adscendens), (D. canum), (D. barbatum), (D. triflorum), (Alysicarpus vaginalis) and (Zornia diphylla) are naturally occurring legumes of improved pasture which seem of importance. (Indigofera hirsuta) is not touched by stock.

/Other....

Other Crops:

Citrus:

297. The orchard continues to give good crops of oranges and grapefruit.

Legumes:

298. Pigeon peas and Cow peas grow well.

Root Crops:

299. The better soils newly cleared from forest can produce good crops of Cassava and Sweet Potatoes.

Insect Pests:

300. The main pest which requires continual attention by spraying with Aldrin is the leaf cutting Acoushi Ant (Atta laevigata).

ST. IGNATIUS LIVESTOCK STATION (D.2172).

General:

301. The development of the St. Ignatius Livestock Station has been seriously retarded by the Foot-and-Mouth prevention measures in the Rupununi. Approximately two-thirds of the 75 square mile Station lie within the 5-mile cordon sanitaire adjacent to Brazil and the purchase of animals for the Station was inadvisable in the circumstances. The existing 80 head was in poor condition owing to the restrictions.

Buildings and Works:

302. Seven buildings were erected. These were quarters for:

- (1) The Agricultural Officer.
- (2) The Veterinary Officer.
- (3) The Farm Manager.
- (4) The Technical Assistant.
- (5) The Foreman.
- (6) Labourers.
- (7) Workshop.

303. A water supply to the Northern section of the compound was installed.

304. An electric power line from Lethem was laid and the above mentioned buildings wired for lights. The lights have not gone on, however, as the joining of the cable from the power house in one place has been omitted.

Soil Survey:

305. A soil survey of the Station has been carried out and division into paddocks for control of the range can now be arranged. A large fencing programme is involved.

Research

Grasses:

306. Good stands of (Paspalum notatum) Bahia Grass and Pangola Grass (Digitaria decumbens) have been established on plots of fertilised land. Small plots of naturally occurring Paspalum species were planted.

Fodder Trees:

307. Nursery plants of the Carob tree have been grown.

Tobacco:

308. A Specialist of the Demerara Tobacco Company worked on the Station. The object is the production of flue cured leaf for the local brand of cigarettes. The varieties Oxford I and Dixie Bright 101 and 102 were grown on the Station and in a nearby sheltered valley. A flue curing barn was erected and leaf was cured, but the sowing was late and results were not entirely unfavourable.

CACAO DEVELOPMENT SCHEME (D.1163 and 1663)

309. The Cacao Development Officer completed his secondment in British Guiana in May and prior to his departure from the Colony, it was decided to expand the propagation of Clonal cacao at four main centres:

- (1) Plantation Providence, Berbice.
- (2) Atkinson Field, East Bank, Demerara.
- (3) Essequibo, and
- (4) Hosororo, North West District.

Permanent glasshouses and propagation bins would be built at these centres to allow for a production of 50,000 rooted cuttings per annum as follows:-

Pln. Providence	10,000
Atkinson Field	20,000
Essequibo	10,000
Hosororo	10,000
Total	<u>50,000</u>

310. This decision to increase production of plants, coupled with the expansion to be met from local Government funds, demonstrates the Department's confidence in the future of cacao for the riverain lands and protected hill slopes in the North West District. Consideration is being given to basing Riverain Land Settlements on this crop, and it is clear that the Colonial Development and Welfare Grant has set going a line of Agricultural Development which, if taken up by farmers, should be of benefit to the Colony.

311. The main item of interest to report on the year's progress is the decision of the Booker's Group of Estates to plant this crop. Some 4,000 Clonal plants were supplied. A number of other farmers are taking an interest, but care is being taken to ensure that shade and wind protection is adequate before plants are distributed.

/Early

Early failures with the Clonal plants may discredit cacao generally and this must be avoided as far as possible.

312. The main experimental and propagation centres are:

- (1) Atkinson Field, East Bank, Demerara.
- (2) Plantation Providence, Berbice.
- (3) Hosororo, North West District.

Smaller plots are maintained at Bartica, Botanic Gardens (Propagation centre) and Cane Grove Land Settlement. Bookers Estates Ltd. have planted cacao at Uitvlugt, Vriedenstein (Pln. Wales), La Bonne Intention, Plantation Providence (Berbice), New Forest, Canje.

313. The total production of rooted cuttings during the year was approximately 15,000 and about 9,000 plants were distributed, approximately 4,500 going to Bookers. The main clones being propagated are I.C.S. 95 and 60 which seem the most vigorous under local conditions. Numerous other clones are being grown and the number is added to from time to time. The propagation capacity at Atkinson Field was increased by a spray bed and 2 hardening bins while Plantation Providence was increased to a 10,000 plant per annum unit.

314. The main experimental area of the Scheme is at Atkinson Field where varietal, fertiliser and mulching trials have been planted. Other crops including African oil palm, Robusta coffee, Blackpepper, Citrus and Manila Hemp have also been planted. Manila Hemp shows promise as a shade plant for young cacao but its fibre possibilities have not yet been investigated. Citrus propagation was carried out in addition to cacao and approximately 1,000 plants were produced. A Citrus orchard with oranges, grapefruit and limes for budding material and marcots is being established.

315. The Colonial Development and Welfare Grant comes to an end in March, 1956 and the work will be continued from local funds and supervised by specialist and district staff.

SOIL SURVEY COAST (D.2396)

General:

316. This survey is designed to carry out a reconnaissance survey of the whole coastal area and a detailed survey of Blocks I and II, Corentyne, Boerasirie and Tapakuma (Essequibo). The United States Operations Mission provided two surveyors to carry out the work, and the Assistant Agricultural Chemist was delegated to counterpart their work. In addition, a Botanist-Ecologist from the Mission worked with the Soil Surveyors for three months.

Survey of Blocks I and II:

317. The detailed survey of Blocks I and II started early in the year and the field work will be completed early in 1956.

/Some....

Some 27,000 acres will have been surveyed. The survey has been carried out under difficult conditions of flooding and heavy vegetative including the growth.

318. The final report of the survey is to be prepared but it appears that at least 80% of the area intended for reclamation is well suited to rice cultivation without the use of fertilisers.

Reconnaissance Survey:

319. A helicopter supplied by the United States Operations Mission was used on this survey which is not yet complete.

SOIL AND LAND USE SURVEY - INTERIOR (R.670)

320. This scheme commenced in September with the arrival of Mr. R. Loxton from the Gold Coast University on secondment for 4 months and Mr. G. Rutherford, Soil Surveyor, based on the Regional Organisation at the Imperial College of Tropical Agriculture.

321. The first area chosen for survey was the Rupununi Savannahs which have been photographed for mapping. Mr. Loxton specialised in the interpretation of aerial photographs for soil survey purposes and taught Mr. Rutherford the technique.

322. This soil survey provides for two Soil Surveyors and two Agricultural Officers for investigating land use. Once again recruitment of suitable personnel is proving difficult.

CENTRAL AGRICULTURAL STATION (D.1931)

322. Negotiations for the purchase of Mon Repos were completed during the year and development of the Station commenced.

323. Mon Repos is a section of a sugar estate approximately 1,000 acres in extent stretching from the sea to the water conservancy. It is situated about 9 miles from Georgetown and contains areas of the three main soil types, namely, coastal clays, sand reef and pegasse. The Station will accommodate the main research activities of the Department, the Livestock Farm and the Central Laboratories. It is intended that Research Officers shall be housed on the Station.

324. The Colonial Development and Welfare Assistance requested is for the capital development of the Station. It was possible to start work on the main road of access and to cultivate about 30 acres of rice land for the Rice Breeding Programme. Some livestock was moved from the Botanic Gardens (Georgetown) Stock Farm, but the rate of removal of personnel and stock depends on the rate at which buildings can be erected.

325. Fields were drained and planted with Para Grass (Brachiaria mutica) which is the main fodder grass for livestock and for sugar cane in connection with Leaf Scald Research.

326. The planning and siting of buildings were under consideration.

SUGAR CANE DISEASES RESEARCH (R.454C)

327. The main diseases receiving study were Leaf Scald, Chlorotic Streak and Ratoon Stunting.

328. The routine inoculation technique for testing the resistance of newly bred and introduced varieties to Leaf Scald continued. Lists of varieties and their ratings are issued from time to time. The use of resistant varieties as the main control measure, coupled with other control measures, has reduced the disease to small proportions.

329. Experiments to determine the rate of spread of the disease under field conditions, through the agencies of rats and contaminated cutlasses at harvest time, were started. The idea behind these trials is that the inoculation technique is over severe, and that potential high yielding varieties may be unnecessarily excluded.

330. Work was carried out on the treatment of diseased material with hot water maintained at a temperature of 50°C. for intervals varying from 45 to 120 minutes. Results on yield reduction have been inconclusive.

331. Chlorotic Streak disease which occurs widely was observed throughout the year, and is thought to be a serious cause of reduction in yield. The insect vector is not known. A yield reduction trial was carried out, and although a significant yield reduction was recorded, this may have been brought about by death of a proportion of heat treated cuttings in control plots.

332. A survey for the occurrence of Ratoon Stunting disease was carried out, and although suspected symptoms were found in a number of places, the existence of the disease is not proven. Plants suspected of Ratoon Stunting have frequently recovered.

FERTILISER INVESTIGATIONS ON RICE

Soil Scientist D.1977.

333. The programme of field experiments commenced in 1954 was continued. Three residual experiments on 1954 sites were carried out and seven new trials laid down, two of which had to be abandoned.

334. The conclusions to be reached from the year's work confirm the fact that on many soils there is a response to phosphate. This is related not only to soil type but also to drainage. Soils of the shallow pegasse and pegassey clay class are produced under conditions which can lead to high concentrations of exchangeable aluminium. This factor appears to be responsible for the phosphate response. On soils with good sub-soil, drainage, particularly those with a sandy sub-soil, there appears to be a downward movement of phosphate; this leads to phosphate deficiency, but not aluminium toxicity.

335. The use of a light dressing of nitrogen at either sowing or transplanting appears to be desirable, both from the point of view of yield increase and improved crop husbandry.

336. No significant increases to potassium have been recorded. This is in keeping with experimental results from other parts of the world.

337. The evidence from experiments with lime is very conflicting. However, since the effects recorded have been small, the problem does not affect the question of fertiliser policy. The problem posed, however, is one that seems of great scientific interest since it points to the necessity of understanding the basic processes operating under wet conditions, in order to be able to predict what will be the effect on the yield of grain when lime is applied to a soil. It is quite possible that interactions between the lime and "trace" elements are involved.

C. VETERINARY AND ANIMAL HUSBANDRY

ANIMAL HEALTH

Bacterial and Virus Diseases:

(i) Anthrax:

336. There were no confirmed cases of Anthrax. Two pigs died suddenly on the Livestock Farm and the entire stock including cattle, pigs, sheep, goats, etc. were vaccinated against Anthrax - no further trouble has arisen.

337. The Sugar Estates and Bel Air Estates, Ltd. carry out routine annual vaccination programmes.

338. Anthrax vaccinations carried out by the Veterinary Division were as follows:-

Pigs ..	..	141
Cattle ..	..	737
Equine ..	..	151
Small stock		95
		<u>1,124</u>

(ii) Tuberculosis:

339. All of the government-owned cattle are tested annually and no case of Tuberculosis has been found in these.

340. On the coastal belt, 892 animals were tested during the year by the Veterinary staff, and these included livestock owned by Government on Land Settlement Schemes, etc. In addition, one dog was tested for Tuberculosis and found to be negative. The incidence was 0.460% compared with 2.38% in 1954 and 2.22% in 1953.

341. At Ebini in the Berbice River, there was no positive reactor of the 300 animals tested.

(iii) Contagious Abortion - Bangs Disease, Brucellosis:

342. Tests on the coastland showed an incidence of 1.94% as against 2.88% in 1954 and 1.2% in 1953.

343. The disease continues to be quite limited and is not an economic problem.

(iv) Mastitis:

344. There was no sign that this disease had increased during 1955 over the incidence in the years immediately preceding.

345. Farmers were becoming more educated towards applying for immediate veterinary assistance for their animals in this condition and good response is got from early treatment with anti-biotics.

(v) Strangles (Equine Distemper):

346. One case was reported during the year and this was successfully treated with anti-biotics.

(vi) Fowl Pox (Yaws):

347. This disease continued to appear in flocks all over the coastal belt. Vaccination trials were carried out at the Livestock Farm with chicks of 3 days of age, the vaccinated birds being challenged at 3 weeks with virus from an active case. Immunity was demonstrated in the vaccinated birds and control (unvaccinated) birds developed the disease.

348. It is proposed to offer a country-wide vaccination programme against this disease.

(vii) Equine Encephalomyelitis:

349. No cases reported.

(viii) Paralytic Rabies:

350. There were two outbreaks of this disease, the major one being in the Kanuku foothills of the Rupununi District among cattle, the other being in cattle in the Demerara River District.

351. Vaccination was carried out in both areas.

Rupununi District	..	3,720	animals
Demerara River District		302	"
Total		<u>4,022</u>	"

(ix) Foot-and-Mouth Disease:

352. This disease was successfully combated in Brazil, and the emergency was considered to have passed by the end of 1955 when the restrictions were relaxed considerably.

Parasitic Diseases:

(i) Anaplasmosis and Piroplasmosis:

353. 59 cases of Anaplasmosis and 12 cases of Piroplasmosis were reported and treated by the Veterinary Division.

/These

354. These figures are no true indication of the number of cases that occur in the Colony, as all the cases occurring are not reported, and many animals died or recovered without treatment.

355. Premunisation of young stock at the Livestock Farm continued as in previous years.

(ii) Equine Trypanosomiasis:

356. There was an outbreak in the Rupununi and 15 animals died. The remainder were treated with Ethidium Bromide and the disease subsided.

(iii) Trichomoniasis:

357. No cases reported. Almost all of the government-owned bulls, with the exception of range cattle in the beef cattle areas, are denied natural service which curtails the incidence of this disease considerably.

(iv) Coccidiosis in other Animals:

358. Occasionally there is a case reported, but this disease presents no formidable problem.

(v) Coccidiosis in Poultry:

359. This disease continues to occur among young stock throughout the Colony, but is fairly well controlled by the use of Sulphaquinoxaline and Sulphamezathine.

(vi) Histomoniasis:

360. This continues to occur in poultry but control is maintained by the use of Entramin (Enheptin T.).

(vii) Intestinal Helminths:

361. Routine dosing of livestock with Phenothiazine and Lead Arsenate continued throughout the year, together with the use of Tetrachlorethylene and Sodium Fluoride.

(viii) External Parasites

Equine Mange:

362. No cases of Sarcoptic mange were recorded in horses, although Demodetic mange is prevalent in dogs.

(ix) Fungus Disease

Ring Worm:

363. No further case of Ring Worm in Government stock was recorded.

Clinical Service and Post Mortem Examinations:

364. 3,269 clinical diagnoses were carried out by the Division, compared with 7,588 in 1954.

365. 214 post-mortem examinations were carried out by the Division during the year as compared with 270 for the previous year.

VETERINARY RESEARCH

366. The research work continues to be curtailed due to adequate staffing. The only new work carried out during the year was fowl pox vaccination trials which proved quite successful, as chicks vaccinated 2 - 3 days old and challenged at 3 weeks of age with live virus from active cases of the disease were found to be immuned. As a result of these trials, it has been decided to adopt vaccination for all chicks hatched at the Livestock Farm, and it is hoped that poultry farmers will adopt this measure.

367. Work on premunisation against Anaplasmosis and Piroplasmosis of calves born on the Livestock Farm was also carried out.

ANIMAL BREEDING AND ANIMAL HUSBANDRY

Dairy Cattle:

368. Efforts to find a good local strain from Holstein-Friesian and Dairy-Sahiwal crosses continued during 1955. The majority of the F¹ heifers showed favourable production. Their calves (F²) however, were very small at birth and rate of growth disappointing, compared with that in the F¹ generation.

369. During the year a young Sahiwal bull was purchased from Trinidad and will be put into service early in 1956.

370. As a follow up to the Artificial Insemination Service, the Division treated with considerable success many dairy cattle for farmers, Sugar Estates, as well as the Livestock Farm with problems of sterility.

371. On the Livestock Farm, the total production of milk for the year was 186,360 pints, an increase of 19,343 pints on the previous year's production.

372. During 1955 the Revolving Heifer Scheme was proposed and approved and purchases of stock commenced. This Scheme involved the purchase of dairy heifers of 5/8 to 7/8 Holstein by Zebu-Creole and the rearing of these heifers to breeding age. These would then be bred by Artificial Insemination and issued to selected farmers to rear up to the age of freshening. The farmer is required to return the first heifer calf to the Department to be similarly reared and impregnated for further distribution.

373. Experience during the year showed that there was a considerable lack of good heifers for this Scheme and only 60 were available locally.

374. Due to the lack of space at the already overcrowded Livestock Farm, these heifers and many other young animals from the Livestock Farm were agisted at Mon Repos, several cane fields having been cut down and temporary sheds built.

Beef Cattle:

375. The imported Santa Gertrudis animals have only just reached breeding age. All of the heifers have been served by one or more of the bulls.

376. The bulls originated at the King Ranch, Texas, and the heifers at Armstrong Ranch, Alabama. Those belonging to the Rupununi District, including bulls and heifers purchased by the Rupununi Development Company, and removed during the Foot-and-Mouth Disease emergency, are to be returned early in 1956 when the breeding programme using the bulls will commence.

377. In order to implement the breeding programme at St. Ignatius Livestock Station, the Rupununi Development Company will supply 150 heifers commencing in January 1956.

378. At Ebini Livestock Station in the Berbice River, use has been made of a Sahiwal-Zebu bull and his offspring have been showing remarkable promise with regard to growth, rate and confirmation. The long-leggedness of the original draught strain Brahmin-Zebu brought in many years ago, is noticeably modified wherever this bull has been used and a comparison of these with the results of breeding from Santa Gertrudis bulls should prove quite interesting.

379. Late in 1955 two young Hereford bulls arrived from United States of America. These were presented to the Government of British Guiana by Messrs. Reynolds Metal Company, Kwakwani, Berbice River through the instrumentality of the Mayor of Georgetown.

Pigs:

380. Breeding of Large Black pigs continued during the year and a total of 294 piglets were produced for the year.

381. During the year 25 pigs imported from the United Kingdom were received - one died in transit. Of this number, three Large Whites were imported on behalf of Bel Air Estates Ltd. Details of imports are as follows:-

Large Whites	-	15
Large Blacks	-	6
Berkshires	-	4

382. The Large White pigs imported in 1955 have so far shown good litter size and excellent growth rates among the piglets.

Poultry:

383. The original laying flock at the Livestock Farm was reduced from 750 birds to 491 because of lack of space, with egg production of 75,036 as compared with 103,000 for 1954.

/During

384. During 1955 considerable progress was made in local poultry production generally. With the arrival of the I.C.A. Poultry Specialist, new feed formulae and improved management practices were introduced.

385. The Department imported approximately 2,500 day old chicks of the Rhode Island Red, Barred Plymouth Rock and White Leghorn breeds and the majority of these were reared in co-operation with a local poultry farmer - his premises being utilised. Consequently, the Departmental supply of chicks to farmers increased and it is hoped to produce 1,000 chicks weekly in 1956, thereby reducing the demand for chicks from the United States of America and Canada.

386. Lack of incubator space and also of poultry pen space precludes any production beyond this point (i.e. 1,000 chicks per week), but it is envisaged that when the Livestock Farm is removed to the new Central Agricultural Station at Mon Repos production will be in excess of this.

387. The Livestock Farm also carried out a programme of exchange of cockerels with farmers in which one pure bred cockerel was exchanged for a creole - the creole being slaughtered for meat.

388. It is hoped to continue this programme during 1956 with the expected increase in production.

389. The following were distributed from the Livestock Farm to improve local breeds:

<u>Cockerels</u>	<u>Pullets</u>	<u>Chicks</u>	<u>Hatching Eggs</u>
404	802	4,019	2,644

D. FISHERIES

The Inland and Marine Fishery Divisions of the Department became separate entities during the year. The Inland Division is concerned with fish production from rivers, creeks, canals, reservoirs and lakes; and the Marine Division with estuarine, inshore and deep sea fishing.

Inland:

390. The main activity of the Division is to promote the culture of fish in ponds. 8 hatchery ponds in the Botanic Gardens provided 26,000 fingerlings of (Tilapia mossambica) for distribution. The other fish being cultured is Cyprinus carpio (Israel variety).

391. It is recorded that 170 ponds varying in size from 150 square yards to 5 acres have been set up and the growth of Tilapia has generally been satisfactory as compared with the local fish "Fatwa" (Cichlasoma Cimaculatum) and "Hassar" (Hoplosternum littorale). It is possible to use the waste product "bhusie" from the rice milling industry to feed fish in ponds.

392. One of the most promising fields for extension of Inland Fisheries is the flood fallows on Sugar Estates. Already the industry has shown interest and planned that two ten-acre fields will be stocked when the number of fingerlings becomes available. It is estimated that a yield of 500 lb. per acre at the end of 12 months would be an economical yield. Fertilising of the ponds and the use of a 3 parts per million concentration of Pentachlorophenol initially to destroy predator fish is contemplated.

393. The development of fish culture on the brackish tidal flats is to be carried out using the Tarpon (Megolops attanicus), Mulletts (Muril spp.) and Snook (Centropomus undecimalis). It is also possible to adapt Tilapia and Carp.

394. The most hopeful fish for fresh water culture are Morocut (Myelus spp.) with other possibilities Arapaima, Prochilodorus and Cichla from the Rupununi.

Marine:

395. The Marine Fishery Division of the Department is concerned with the organisation of the industry, the development of improved methods of capture, research on fishing grounds and gear technology and the organisation of fishermen.

396. The main activity during the year was the work on the Fishery Centre with its fish wharf, ramp and grid for docking boats, wholesale fish market, refrigeration rooms and ice plant, fishermen's shelter and canteen, net preservation equipment and drying racks and a fish collection launch. It is expected that the full unit will be completed by mid 1956.

397. A Fisheries Advisory Committee was set up which will be largely advisory on the direction of the Centre.

398. The Division is to have its own all-purpose boat for survey and training and this is being ordered.

399. A Co-operative Officer is being trained in the organisation of fishery co-operatives.

400. Refund of duty on fishing gear totalling \$10,832.54 in 1955 was an additional activity of the Division.

E. MARKETING DIVISION

401. The general policy of the Division remains unchanged, namely, the encouraging of increased production, particularly so of those items in which it trades, offering to farmers and producers of an assured market, paying producers economic prices and generally maintaining fair prices and equitable distribution of available supplies to consumers.

402. The following services were operated:-

- I. Government Produce Depots (4)
- II. Processing Factory
- III. Livestock Control Organisation
- IV. Ham and Bacon Factory
- V. Milk Marketing Organisation.

403. A total of 135 persons were employed in various categories during the year.

FINANCES

404. Total purchases and sales of each branch of the Division were as follows:-

	<u>Purchases</u>	<u>Sales</u>
Govt. Produce Depot	\$ 173,680.48	\$ 205,610.63
Processing Factory	163,948.55	155,590.18
Livestock Control Org. ..	877,334.01	820,712.58
Ham and Bacon Factory ..	45,182.27	41,430.71
Milk Marketing Organisation	136,666.70	171,220.66
	<u>\$1,396,812.01</u>	<u>\$1,394,564.76</u>

405. The trading results for the year were as follows:-

	<u>Gross Profits</u>
Government Produce Depot	\$ 31,934.82
Processing Factory	23,390.36
Ham and Bacon Factory	9,353.10
Milk Marketing Organisation ..	37,978.20
	<u>\$102,656.48</u>
Livestock Control Org. - Gross Loss	41,195.88
Total Gross Profit ..	<u><u>\$ 61,460.60</u></u>

406. These profits when deducted from the actual expenditure of the Division amounting to \$287,196.35 leaves the sum of \$226,824.23, representing the net cost of the Division to Government for the year, compared with \$144,328.66 in 1954.

GOVERNMENT PRODUCE DEPOT

407. The Depot maintained centres for purchasing farmers' produce at Kumaka and Morawhanna (North West District), Charity and Diamond (Pomeroon), Parika (West Demerara), New Amsterdam (Berbice) and Georgetown. With the exception of the Pomeroon and Parika areas, the centres operated on a whole time basis. Marketing Assistants paid fortnightly and weekly visits to the Pomeroon and Parika areas respectively for the purpose of purchasing produce.

408. Operating on a free market, the Depot has had to face keen competition from increasing number of hucksters. With the general supply of ground provisions far from adequate, the Depot suffered the disadvantage of having to purchase at highly competitive prices, and to sell on a selective market in competition with the market retail traders.

409. Wholesale trading was undertaken with retail distributors (hucksters), Government Institutions and other large users.

/Retailing

Retailing of produce was carried on at the Central Depot, Stabroek and Bourda branches and at New Amsterdam. The Georgetown C.O.D. service continued to operate from Stabroek and has expanded within the limits of available supplies.

Plantains and Ground Provisions:

410. Plantains and ground provisions showed some increase in quantity over the 1954 supply, but purchase prices were maintained at a fairly high level.

411. 836,078 lb. of these commodities were purchased for \$45,595.82 as compared with 794,882 lb. valued at \$34,839.35. The quantities and value of the individual items were as follows:-

Plantains ..	570,421 lb.	valued	\$32,664.53
Sweet Potatoes	53,087 "	"	3,312.68
Yams	62,031 "	"	2,751.24
Tannias ..	32,026 "	"	2,037.49
Eddoes ..	113,460 "	"	4,470.01
Sweet Cassava	5,053 "	"	359.87
Total	836,078 "	"	\$45,595.82

412. Despite the improved supply to the Depot, it is worthy of note that large quantities of plantains and ground provisions were imported from Nickerie (Surinam) and found a ready market.

Fruits:

413. Supplies to the Depot were fair with some improvement in grapefruits. Oranges continued in short supply and importation from Surinam and Trinidad had to be made.

Coffee and Cocoa Beans:

414. 30,877 lb. of coffee beans were purchased at a cost of \$22,484.62 while purchases of cocoa beans amounted to 13,269 lb. valued at \$5,155.06. The high prices for coffee beans in 1954 declined by 12 to 20 cents per lb. in 1955.

Livestock Feeds:

415. The Depot was responsible for the distribution of Livestock Feeds produced at the Processing Factory and for their components comprising both local and imported commodities. A comparative statement of the sales of feeds and components follows:-

	<u>1 9 5 5</u>		<u>1 9 5 4</u>	
	<u>Lb.</u>	<u>Value</u>	<u>Lb.</u>	<u>Value</u>
Georgetown	1,249,355	\$74,211.14	1,351,670	\$81,750.37
New Amsterdam	218,904	15,322.80	199,969	13,610.47

416. Other products manufactured by the Processing Factory and distributed by the Depot included corn meal, plantain flour, corn germ and canned pineapples.

/Veterinary

Veterinary Supplies

Insecticides and Fertilisers:

417. Sale of these commodities by the Depot and also through the District Agricultural Superintendents and Instructors, acting as distributing agents for the Government Produce Depot, continues to provide a valuable service to farmers generally and more particularly so to those in remote areas.

Cold Storage and Ice:

418. Five rooms were operated during the year - two in connection with the Ham and Bacon Factory, two for storage of beef by air and one for milk storage. Revenue amounted to \$7,919.05 and the cost of operation was \$20,030.38. The loss on operations was therefore \$12,111.33. This loss was attributed directly to the cessation of ice manufacture following representation by a private producer.

Miscellaneous:

419. The Depots continued to trade in a variety of other farm products, e.g. cassava starch, honey and preserved fruits, minor fruits, etc.

PROCESSING FACTORY:

420. The Factory continued to demonstrate its usefulness to farmers throughout the country and played an invaluable part in the Department's drive to rehabilitate, expand and improve the Colony's livestock industry. Conditions of operation, coupled with a decision not to increase selling prices of finished products in the interest of maintaining the confidence of farmers, resulted in a trading loss.

421. The principal factors contributing to this condition were:

- (a) inadequacy of the local corn crop resulting in sustained high prices;
- (b) price increases for both local and imported ingredients; and
- (c) increase in operation costs following Government's revision of salaries and wages.

Livestock Feeds:

422. Hereunder will be found a comparative statement of feeds manufactured for the years 1954 and 1955:

	<u>1955</u>	<u>1954</u>
	<u>Lb.</u>	<u>Lb.</u>
Chick Starter	61,940	58,960
Growing Mash	177,617	143,160
Layers Mash	423,402	394,160
Layers Mash (special)	110,645	146,188
Poultry Feed Mixture	900	-
Broiler Mash	560	5,766
Carried Forward	<u>775,064</u>	<u>748,234</u>

/Dairy

	1955	1954
	Lb.	Lb.
Brought Forward	775,064	748,234
Dairy Meal	388,450	392,270
Dry Dairy Meal	58,050	-
Dairy Meal (special)	-	66,195
Cattle Feed	211,242	108,900
Calf Gruel	41,960	41,110
Calf Feed	28,000	30,000
Calf Meal	5,400	-
Pig Starter	145,875	69,517
Pig Grower	108,420	-
Pig Finisher	117,457	77,560
Pig Meal	58,774	58,690
Pig Feed	26,250	3,800
Pig Mixture	3,800	-
Sow Ration	7,840	-
Goat Feed	250	1,950
Mule, Horse and Donkey Feed	44,644	46,000
Total ..	2,021,476	1,644,226

Corn:

423. Purchases of local corn for the year amounted to 573,337 lb. at an average price of 6½ cents as against 587,446 lb. at 6¼ cents in 1954. Increased production of feeds calling for greater consumption of corn in their composition compelled importation of additional quantities. Importations were as follows:-

54,790 lb. (U.S.A.)	Corn Chops @ 8.8 cents per lb.
54,482 " (S/Africa)	" " @ 8.6 " " "
20,093 " (do.)	Whole Corn @ 8.5 " " "
129,365 lb.	

Corn Meal:

424. Manufacture was severely restricted by the inadequacy and high price of corn. Only 22,603 lb. were produced compared with 298,672 lb. in 1954.

Plantain Flour:

425. Scarcity of supplies of plantains and consequent high prices seriously reduced manufacture. Plantains were purchased at an average cost of 5½ cents per lb. and the cost of production was 37.7 cents per lb. Only 15,000 lb. were manufactured compared with 39,930 lb. in 1954.

Pineapple Canning:

426. Pineapple canning on a commercial scale was not possible in view of strong price demands by farmers. Whereas the average price in 1954 was 13½ cents per fruit, farmers would not sell under 15 cents during 1955. At this price production would have been uneconomic. There appeared to be a ready consumer market for all available supplies of pineapples.

LIVESTOCK CONTROL ORGANISATION

427. A total of 9,397 head of cattle valued \$932,711.51 was purchased as follows:-

Georgetown	4,007	head	valued	\$378,387.27
Rupununi (by air)	4,468	"	"	483,682.59
New Amsterdam	822	"	"	70,641.65
Total	9,397	"	"	\$932,711.51

This represents an increase of 183 head on the previous year's purchases, the differential in value being \$64,350.71 above the 1954 figure.

428. The weight of beef transported by aircraft from the Rupununi was 1,562,731 lb. The previous highest total similarly transported was 1,011,899 lb. in 1953. The 1954 total was 946,898 lb. The increase in supplies from this source was 615,833 lb.

429. Work on the Lethem Abattoir was completed during the year but use could not be made of it as it is situated in the area restricted under the precautionary measures against Foot-and-Mouth disease.

430. Slaughter of cattle was carried out at temporary Abattoirs situated at Maracanata in the North savannahs and Mountain Point in the South. Air shipments were made directly from these points.

HAM AND BACON PLANT

431. The Plant is an integral part of the Department's drive to resuscitate and improve the Colony's once thriving pig industry. Its primary purpose is to provide for farmers an assured market at fair, economic prices for pigs of good quality which are suitable for processing.

432. Full scale operation of the Plant on a commercial basis began in April and purchases to the end of the year amounted to 824 pigs weighing 86,860 pounds (carcase weight) valued at \$45,182.27.

433. Production and Sales of finished products for the year were as follows:-

				<u>Production</u>	<u>Sales</u>	
				<u>Lb.</u>	<u>Lb.</u>	<u>Value</u>
Ham	..	..	..	11,832	10,218	\$13,510.23
Bacon	..	..	..	18,034	13,187	11,983.76
Sausages	..	..	..	779	769	641.20
Lard	..	..	..	3,237	565	130.59
Ham and Bacon Scraps				-	-	194.84
Total	..	..	..	33,882	24,739	\$26,460.62

434. Sale of Residual Pork Cuts for the year amounted to \$14,970.09, and proved a boon particularly to the poor classes, as these end-products are usually sold at prices well below market levels.

435. Consumer reaction to the products of the Plant has been very gratifying. Some difficulty was at first experienced in winning the interest of local merchants, due to the fact that most of them were then heavily stocked with similar products imported from abroad; but this has since been overcome. General opinion is that the Plant is filling a long felt want while at the same time contributing to the economy of the Colony.

436. During the period of the Plant's existence, there has become evident a marked improvement in the general quality of pigs marketed, and farmers' prices have been maintained at an economic level.

Financial:

437. The net profit on the operation of the Plant was \$2,556.38.

MILK MARKETING ORGANISATION

438. A total of 209,138 gallons of milk valued at \$136,666.70 was purchased from producers or accredited collectors. This represents a decrease of 71,202 gallons on the previous year's purchases which amounted to 280,340 gallons valued at \$183,086.32. The total value of sales for the year was \$201,285.

439. Supplies available to the Organisation continued to show a steady decline for the first ten months. The last two months showed a sharp increase.

Cream:

440. A total of 3,173 gallons of milk was separated for ultimate manufacture into Ghee.

Ghee:

441. Included in the milk separated into cream is 614 gallons which was manufactured into Ghee.

Pasteurisation Plant:

442. Some difficulties were experienced before a suitable site was obtained upon which the dairy building could be erected to house the Plant.

443. A steel frame building was ordered from England in addition to the cold store insulation materials and special paviers and steel plates for the dairy floors.

444. New plant lay-out drawings were obtained and the dairy designed accordingly.

F. THE BOTANIC GARDENS

445. Routine maintenance was carried out on the Gardens. It was again difficult to keep the lawns mown by machines owing to wet weather, and the scythe had to be used. A fine collection of Hibiscus was acquired. A total of 11,078 economic plants were sold. The Gardens were well patronised by the public.

G. GENERAL AGRICULTURAL CENSUS AND
ECONOMIC SURVEYS

General Agricultural Census 1955:

446. A sample of 1,700 farms on the coastal belt was taken to provide the data for the annual census. The census provides up-to-date information on the major crops and livestock of the Colony. The year to year information provided by the annual census will be particularly valuable for forecasting crops in the future.

Land Utilization - Canals Polder:

447. 100 farms in the Canals Polder area on the West Bank of the Demerara River were used as samples for a Land Utilization Survey. Aspects of crop selection, crop rotation, farm layout, livestock programme, etc. on the different soil types were studied.

Rice Production Survey:

448. 100 farms in the Windsor Forest area were taken as samples for studying organisation, production and economics of rice farming in an area where two crops a year are grown.

H. METEOROLOGICAL DIVISION

449. A separate report is issued on the work of this Division.

SECTION III

COLONIAL DEVELOPMENT AND WELFARE SCHEMES

450. The following Research Schemes were in operation, and have been reported on under Section II, B. Research and Experimentation:

Cotton Investigations (D.2516)
Hosororo Experiment Station (D.2319)
Ebini Livestock Station (R.336A)
St. Ignatius Livestock Station (D.2172)
Cacao Development Scheme (D.1163) and (D.1663)
Soil Survey Coast (D.2396)
Soil and Land Use Survey - Interior (R.670)
Central Agricultural Station (D.1931)
Sugar Cane Diseases Research (R.454C)
Fertiliser Investigations on Rice
Soil Scientist (D.1977)

The following general Schemes were administered by the Department:-

Refrigeration Plant and Abattoir, Lethem (D.1878)

451. Construction of this plant in the Rupununi was practically completed during the year. The Foot-and-Mouth disease emergency in the area resulted in a general slowing down of operations since the Abattoir was within the cordon sanitaire from which cattle were prohibited. There was no urgency, therefore, to put it into operation. At year end, all that remained to be done was installation of electrical motors and connections to water and electricity supply.

Staff Training (D.2353, D.2426, D.2477)

452. Four Cadets were recruited. They commenced an intensive one year in service course of training and will be sent to the Eastern Caribbean Farm Institute a year prior to appointment as Agricultural Instructors.

453. Five serving Instructors and a new recruit completed their course of training at the Institute. Five were awarded Diplomas, one of whom was sent subsequently to the Imperial College of Tropical Agriculture for higher training.

454. Five serving Instructors, two recruits and a Prison Officer in charge at the Farm at the Mazaruni Prison entered the Institute at mid-year for the second one year course.

Fisheries - Inland and Sea (D.2555)

455. A grant of \$121,600 was received at year end for the development of Inland and Sea Fisheries.

It provided for the establishment of pilot brackish and fresh water ponds, improvement of rural landing facilities, storage and marketing, erection of fish drying floors and construction of a prototype fishing boat and an all purpose coastal survey vessel.

456. In view of the late receipt of the grant, it was possible only to plan activities for 1956 and to place orders for certain supplies.

INTERNATIONAL COOPERATION ADMINISTRATION OF U.S.A.

Technical Assistance:

457. The Department continued to receive valuable assistance from the I.C.A. of the U.S.A. During the year the following Technicians, whose work is included elsewhere in this report, were attached to the Department:

1. Swine Specialist	-	Dr. M. Kerr
2. Poultry Specialist	-	Dr. N. Paulhus
3. Information Specialist	-	Mr. A. Feeney
4. Farm Youth Specialist	-	Mr. S. Sutton
5. Ecologist	-	Dr. E. Little
6. Soil Surveyors	-	Mr. C. Simonson) Mr. D. Crocker)

Dr. W.B. Kemp was chief of the Mission to the Colony.

458. I.C.A. arranged also for on-farm training in the U.S.A. of six young farmers.

459. The Mission provided a helicopter to expedite the Coastal Soil Survey.

CONFERENCE OF THREE GUIANAS AND VENEZUELA

460. At the invitation of the Government of British Guiana, a Technical Conference in Agriculture and Forestry was held at Georgetown, and to which delegates from Venezuela, Suriname and French Guiana were invited. In addition, the Caribbean Commission, I.C.A. Missions in the area and the Imperial College of Tropical Agriculture were represented. The Conference was opened by His Excellency, the Officer Administering the Government.

461. A wide range of subjects of mutual interest in the fields of Land Settlement, Soils, Animal Husbandry, Research and Forestry was discussed, visits paid to places of interest, and useful contacts and exchange of information secured. The Conference was considered successful and it was agreed that similar Conferences should be held in future every two years.

CONFERENCES, BOARDS AND COMMITTEES

462. The Director of Agriculture served as Chairman of the following Boards and Committees:-

Sugar Industry Price Stabilisation and
Rehabilitation Funds Committee.
Berbice Fibre Research Company Ltd.
Museum Committee (Board of Trustees for the
Georgetown Cultural Centres).

Sugar Experiment Stations' Committee.
Committee for fixing rents of rice lands, etc.

463. The Director also served as a member of the following Boards and Committees:-

Rice Marketing Board.
Rice Marketing Board - Executive Committee.
Selection Committee for the Imperial
College of Tropical Agriculture Scholars.
Davson Memorial Fund Committee.
Scholarship Selection Committee.
Land Settlement Advisory Committee.
Pig Rearing Industry Committee.
Development Programme Technical
Co-ordination Committee.
Duty-free and Drawback Gasolene Committee.

464. He served as a Director of the Rice Development and the Barbice Fibre Research Companies.

465. The Director attended the following meetings held outside the Colony:-

Advisory Council of Agriculture, Animal
Husbandry, Forestry and Fisheries in
Barbados.
Sixth Session of the West Indian
Conference in Puerto Rico.
Jamaica Tercentenary Celebrations -
Agricultural Exhibition.
Regional Economic Committee in Antigua.
Food and Agricultural Organisation
Conference on Rice at Bangkok,
Thailand.

SENIOR STAFF CHANGES

466. The following changes of senior staff occurred during 1955:-

Appointments:

Mr. L.D. Cleare, Padi Pest Research Officer	-	1st April
Mr. C.H. Brown, Principal Scientific Officer	-	25th April
Mr. C.A. Bannister, Farm Manager	-	1st March
Mr. W.H. Smith, Grade I Technical Assistant	-	1st May
Mrs. C. Churaman, Assistant Superintendent, Rural Youth Work	-	1st July

Promotions:

Mr. P. Poonai, Asst. Agricultural Superintendent to Temporary Agricultural Superintendent	-	1st July
Mr. M. Ramnarine, Grade I Agricultural Instructor to Assistant Agricultural Superintendent	-	1st April
Mr. G.L. Leitch, Grade II Agricultural Instructor to Grade I Agricultural Instructor	-	1st January

Mr. C.G.M. Shaw, Grade II Agricultural Instructor to Grade I Agricultural Instructor - 1st January
 Mr. W.R. Harper, Grade II Technical Asst. to Grade I Technical Assistant - 1st May

Transfers:

Dr. J.F.F. Callear, Senior Veterinary Officer to Tanganyika - 19th October
 Mr. O.F. Churaman seconded as Superintendent, Rural Youth Work - 1st July
 Mr. J.R. Browman, Grade II Technical Assistant to Land Settlement Department - 1st December
 Mr. J.A. Brassington, Grade II Agricultural Instructor to Land Settlement Department - 1st December
 Mr. S.A. Adams, Class I Clerk to Chief Secretary's Office - 21st June

Retirements:

Mr. L.D. Cleare, Deputy Director of Agriculture - 17th August

Leave

Mr. S.A. Angoy, Chief Clerk
 Dr. D.L. Diamond, Veterinary Officer
 Mr. W.R. Asfour, Agricultural Superintendent
 Mr. H.A. Cole, Asst. Agricultural Superintendent
 Mr. P.A. Chan Choong, Economic Botanist
 Mr. L.H. Hope, Grade I Agricultural Instructor
 Mr. T.P. Dettering, Grade I Technical Assistant
 Mr. C.A.N. Persaud, Grade I Technical Assistant
 Mr. J.E. Isaacs, Grade I Technical Assistant
 Mr. C.E. Ruhoman, Grade I Technical Assistant

OFFICIAL VISITORS - 1955

467. Official visitors from overseas for the year were as follows:-

<u>Name</u>	<u>Post</u>
Dr. W.D. Raymond	- Of the Colonial Products Laboratory
Sir Geoffrey Clay	- Agricultural Adviser to the Secretary of State
Miss F.H. Gwilliam	- Assistant Educational Adviser to the Secretary of State
Dr. G.A.C. Herklotts	- Principal, Imperial College of Tropical Agriculture
Mr. J.R. Howes	- Senior Lecturer in Animal Husbandry, Imperial College of Tropical Agriculture
Mr. C.S. Christian	- Officer-in-Charge, Land Research and Regional Survey Section, Australia
Miss A. Jeinee	- Technical Officer of Food and Agricultural Organisation of United Nations, Bangkok
Mr. H.L.H. Schutz	- Director, Marketing Division, Department of Animal Husbandry and Fisheries

SECTION IV

LEGISLATION

Summary of Legislation affecting Agriculture enacted during 1955.

Ordinances

Purposes

- | | |
|---|--|
| No. 13 - B.G. Credit Corporation
(Amendment) Ordinance | To provide for the establishment, institution powers, duties and functions of the B.G. Credit Corporation, one of the functions of which is to provide credit for agriculture. |
|---|--|

Orders in Council

- | | |
|---|--|
| No. 5 - The Animal Diseases
(Prohibition of Importation) Order, 1955. | To extend the term
"animal" to include cats. |
| 6 - Plant Diseases and Pests
(Protection) (Revocation) Order, 1955. | To prohibit the importation of grasses, sugar canes, earth, soil, etc. |
| 7 - Animal Diseases (Prohibition of Importation)
(Wild Carnivores)
(Amendment) Order, 1955. | To prohibit the importation of certain animals from certain territories. |
| 12 - Animal Diseases (Prohibition of Importation)
(No. 2) Order, 1955. | do. |
| 22 - Animal Diseases (Prohibition of Importation)
(Wild Carnivores) (No. 2)
Order, 1955. | do. |
| 24 - Importation of Poultry
Carcasses (Control)
Order, 1955. | To control the importation of poultry carcasses. |
| 28 - Animal Diseases (Prohibition of Importation)
(No. 3) Order, 1955. | To prohibit the importation of certain animals from certain territories. |
| 34 - Animal Diseases (Prohibition of Importation)
(No. 3) (Amendment)
Order, 1955. | do. |

Regulations

- | | |
|--|---|
| No. 6 - Plant Protection (Conditions of Importation)
Regulations. | To prescribe the conditions of importation of planting material |
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APPENDIX

SENIOR STAFF OF THE DEPARTMENT AS AT

31ST DECEMBER, 1955.

Director ...	...	...	A.F. Mackenzie, B.Sc. (Hons.) (Lond.) A.R.C.S., A.I.C.T.A.
Deputy Director	...	...	Vacant
Deputy Director Acting	...	...	G.B. Kennard, D.I.C.T.A., A.I.C.T.A.

RESEARCH AND EXPERIMENTATION

Assistant Director (Research)			R.O. Williams, D.I.C.T.A., A.I.C.T.A.
Entomologist	...	...	J.H. Proctor, B.Sc. (Wales), D.T.A. (Trin.)
Economic Botanist	...	...	P.A. Chan-Choong, B.Sc. (Hons.) (Lond.) A.I.C.T.A.
Assistant Agricultural Superintendent, Botany	...	...	P. Poonai, D.I.C.T.A., A.I.C.T.A.
Plant Pathologist	...	...	J.A. Pires, M.S.A.
Padi Pest Research Officer	...	...	L.D. Cleare, F.R.E.S.
Agricultural Economist	...	...	O.P. Blaich, B.S.A. (Manitoba) M.S.
Sugar Agronomist	...	...	L.S. Birkett, D.I.C.T.A. A.I.C.T.A.
Agricultural Chemist	...	...	H. Paul, B.Sc. (Lond.) M.Sc. (Mc Gill), D.I.C. (Lond.) F.R.I.C.
Grade I Technical Assistant (Chemistry)	...	...	E.J.A. Khan, B.Sc. (Edin.)
Fishery Officer (Inland)	...	...	W.H.L. Alsopp, M.S. (Wisc.)
Fishery Officer (Marine)	...	...	E.A. Shepherd
Curator	...	...	G.E. Wolstenholme
Grade I Technical Assistant (Meteorology)	...	...	J.E. Isaacs.

/VETERINARY....

VETERINARY AND ANIMAL HUSBANDRY

Assistant Director (Veterinary and Animal Husbandry) ...	Vacant
Assistant Director (Veterinary and Animal Husbandry) Acting	E.M. Mc Watt, D.V.M. (Ont.)
Veterinary Officer ...	D.L. Diamond, D.V.M. (Ont.)
Veterinary Officer ...	E.M. Mc Watt, D.V.M. (Ont.)
Livestock Officer ...	E.I. Hugh, M.S. (Iowa), B.Sc. Agric. (Mc Gill) D.I.C.T.A. Dip. Agric. (Read.)
Farm Manager, St. Ignatius Station ...	C.A. Viera
Farm Manager, Georgetown ...	C.A. Bannister, Dip. Agric.

AGRICULTURAL EXTENSION

Assistant Director (Field and Extension) ...	G.B. Kennard, D.I.C.T.A., A.I.C.T.A.
Superintendent of Rural Youth Work ...	O.F. Churaman, D.I.C.T.A.
Assistant Superintendent, Rural Youth Work (Temporary)	Mrs. C. Churaman, B.Sc. (Home Econ.)
Agricultural Superintendent, Essequibo ...	W.R. Asfour, B.Sc. (Wales), M.S. (Utah)
Agricultural Superintendent, Berbice ...	L. Kong, B.Sc. (Mc Gill)
Agricultural Superintendent, East Coast, Demerara ...	A.V. Wan Ping, B.Sc. (Mc Gill) D.I.C.T.A.
Agricultural Superintendent, (Education) ...	B.O. Ho-Yen, M.Sc. (Mc Gill) D.I.C.T.A.
Agricultural Superintendent, seconded to Rice Development Company ...	E.G. Giglioli, B.Sc. (Agric.) (Mc Gill)
Assistant Agricultural Superintendent, West Coast, Demerara	H.A. Cole
Assistant Agricultural Superintendent, North West District	H. Madramootoo, B.S.A. (Br. Columbia)

MARKETING DIVISION

General Manager ...	C.I.V. Mittelholzer
Chief Accountant ...	G.F. Chan

MARKETING DIVISION (cont'd)

Manager, Government Produce Depot	...	...	Vacant
Dairy Manager	...	...	A.F. Singleton
Secretary-Accountant, Milk Marketing Organisation	...		D. Seeram
Livestock Control Officer	...		D. Paul
Manager, Processing Factory			L. Paul

SENIOR ADMINISTRATIVE STAFF

Chief Clerk	...	...	S.A. Angoy
Senior Accounting Officer	...		K. Rohoman

OFFICERS WORKING ON COLONIAL DEVELOPMENT AND WELFARE SCHEMES

Cotton Officer	...	...	C.H. Brown, B.Sc.
Soil Scientist	...	...	J.K. Gasser, A.R.I.C., M.Sc.
Soil Surveyor (on loan from I.C.T.A.)	...	...	G.K. Rutherford, B.Sc.
Soil Surveyor (on loan from University of Gold Coast)	...		R.F. Loxton, B.Sc.

INTERNATIONAL COOPERATION ADMINISTRATION PERSONNEL

Swine Specialist	...	...	M. Kerr, M.S.
Poultry Specialist		...	N. Paulhus, Ph.D.
Information Specialist	...		A. Feeney, B.A.
Farm Youth Specialist	...		S. Sutton
Ecologist	...	...	E. Little, Ph.D.
Soil Surveyor	...	...	C. Simonson, B.Sc. M.Sc.
Soil Surveyor	...	...	D. Crocker, B.Sc.

FOOD AND AGRICULTURAL ORGANISATION PERSONNEL

Research Officer, Ebini Livestock Station	...		J.R. Goode, B.Sc.
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